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FOR THE YEAR

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SIR JOHN ELIOT, M.A., F.R.S., K.C.I.E.,
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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, JANUARY 1902.

INTRODUCTION.

THE monthly review of the weather in India for the month of January 1902 is based on observations taken daily at 8 A.M. at 226 stations, and on additional observations recorded at 10 A.M. and 4 P.M. at 65 stations. In the case of the rainfall section of the review there are also utilized the rainfall statements of the month published in the Government Gazettes by the Provincial Governments that have been issued prior to the date of the publication of the review. A brief summary of the information relating to the weather in the Bay of Bengal and the Arabian Sea, extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given. In the remaining monthly reviews of the present year the brief statements of the methods of recording and tabulating the data, for each of the elements of observation, given in the present number at the commencement of each section, will not be repeated.

Summary of the chief features of the weather in India during the month of January, 1902.

January 1902 was unusually free from storms. No storms entered North-West India from the countries to the west, and the few storms which formed over Gujarat and thence advanced north-eastward through the central parts of the country were feeble depressions which exercised very little general influence on the weather. The leading features of the meteorology of the month over nearly the whole country were abnormal dryness of the air, absence of cloud, very scanty rainfall, mean temperature higher than usual and a large diurnal range of temperature in the north-west.

At the commencement of the month temperature was below the normal over Northern India, due probably to the influence of the snowfall and rainfall of the last week of December. This rainfall and snowfall cleared the air of the dust so that rapid radiation occurred at night and the mean temperature hence continued low over Northern India during the first ten days of the month after the snowfall had almost disappeared from the outer hills. The following gives temperature data for the divisions of Northern India and for Burma for the first ten days of January and illustrates this condition :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of									
	1st Jan.	2nd Jan.	3rd Jan.	4th Jan.	5th Jan.	6th Jan.	7th Jan.	8th Jan.	9th Jan.	10th Jan.
	°	°	°	°	°	°	°	°	°	°
Burma	−1·4	−0·2	−0·3	−0·7	−0·6	−0·4	−0·3	+0·1	−0·1	+0·3
Assam	−0·5	−1·7	−1·9	−1·8	−2·7	−2·3	−1·3	−1·0	+1·2	+0·5
Bengal	−0·5	−1·3	−1·5	−1·9	−1·6	−0·6	+0·6	+1·0	+2·8	+2·3
Orissa	−2·0	−2·5	−3·9	−2·0	−0·1	−0·7	+0·7	+0·2	+0·1	+2·4
Bihar	−1·1	−2·0	−3·0	−3·0	+0·1	−0·6	−0·7	+2·5	+3·4	+3·3
Chota Nagpur	−1·4	−2·1	−2·2	−0·6	+2·0	+0·1	0	+2·2	+2·8	+3·5
North-Western Provinces and Oudh.	−1·2	−3·0	−3·0	−3·3	−1·8	−0·9	+0·9	+3·0	+2·2	+2·7
Punjab	+0·3	−0·9	−2·0	−1·8	−3·1	−3·6	−2·7	−2·9	−0·5	−0·4
Sind	−1·2	+0·3	−0·9	−2·4	−1·3	−2·4	−3·0	−2·8	−2·8	−3·3
Rajputana	−2·1	−2·5	−2·2	−3·3	−4·9	−5·4	−3·5	+0·9	+1·6	+2·7
Gujarat	+4·0	+2·5	−0·7	−2·2	−0·9	−3·0	−0·7	+2·5	+2·4	+3·6
Central India	−1·3	−0·8	+1·3	−0·7	−2·8	−4·5	−1·3	+3·2	−1·0	+2·5

During the same period of ten days frequent showers were received over the south of the Peninsula reducing temperature to below the normal over that area This is shown below :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of									
	1st Jan.	2nd Jan.	3rd Jan.	4th Jan.	5th Jan.	6th Jan.	7th Jan.	8th Jan.	9th Jan.	10th Jan.
	°	°	°	°	°	°	°	°	°	°
Mysore	−1·0	−1·8	+0·4	+1·3	+1·7	+3·4	−0·2	+1·1	+2·1	+0·2
South India	−0·1	+0·8	+0·2	−3·0	−0·7	−0·7	+0·2	−3·0	−0·7	−0·2

Between these two areas of deficient temperature there was a broad belt in which the mean temperature was in large excess. The following gives data for the divisions within this belt :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of									
	1st Jan.	2nd Jan.	3rd Jan.	4th Jan.	5th Jan.	6th Jan.	7th Jan.	8th Jan.	9th Jan.	10th Jan
	°	°	°	°	°	°	°	°	°	°
Berar	+3·3	+4·5	+5·6	+5·0	+7·1	+5·5	+5·4	+6·6	+2·4	+5·9
Central Provinces	+1·7	+0·3	+1·7	+3·6	+3·3	+0·8	+2·5	+3·7	+1·7	+3·9
West Coast	+2·4	+1·6	+1·9	+1·9	+2·8	+2·6	+3·2	+3·8	+3·7	+4·1
Madras Coast	+0·1	+0·2	+0·2	−0·2	+1·4	+2·9	+2·6	+2·2	+1·7	+1·1
Bombay Deccan	+2·7	+2·7	+3·4	+3·8	+3·4	+4·3	+5·1	+4·5	+4·0	+4·0
Madras Deccan	+0·9	+0·7	+1·1	+1·2	+2·4	+3·2	+1·1	+2·1	+3·0	+1·8

Between the 6th and the 10th the weather became feebly unsettled and showery over the central parts of the country. The showers were generally very light but exceeded an inch in amount at the following stations in Central India where the rainfall was heaviest and most general :—

State.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
Mandla	Tikaria	4th January	1·10
Bundelkhand	Birsinghpur	7th ,,	3·50
	Dhurwai	,, ,,	1·85
Gwalior	Bhander	,, ,,	1·31
	Shujaulpur	,, ,,	1·10
Rutlam	Rutlam	8th ,,	2·20
Bhopal Agency	Narsinghgarh	,, ,,	1·80
Bundelkhand	Birsinghpur	,, ,,	1·75
Gwalior	Pichhor	,, ,,	1·30
	Shujaulpur	,, ,,	1·11
	Sikarwari	,, ,,	1·03
Bundelkhand	Kadaura	,, ,,	1·03
Gwalior	Pichhor	9th ,,	1·51

These showers reduced temperature over the area affected. The following gives data for certain selected stations for the 8th, 9th and 10th :—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	8th January.	9th January.	10th January.
	°	°	°
Agra	+0·8	+5·5	+4·7
Jaipur	+0·7	+0·7	+2·9
Ajmer	+1·5	+3·1	+4·2
Deesa	+2·0	+4·8	+4·8
Neemuch	−1·4	−0·9	+0·4
Jhansi	−2·7	−2·2	+0·8
Hoshangabad	+0·9	−2·3	+0·6
Indore	+5·5	−2·1	+3·3
Saugor	+3·2	−1·2	+4·3
Nowgong	+3·1	−1·0	+2·4
Sutna	+5·4	+0·1	+4·0
Jubbulpore	+6·4	+2·5	+6·6
Khandwa	+7·2	+3·6	+6·4

On the 10th a fall of temperature occurred over Baluchistan and North-West India, and a cool wave advanced across Northern India, reaching Orissa by the 14th and 15th. The reduction of temperature caused by this cool wave was not very marked, but the recovery, after it had disappeared, was brisk. The following gives comparative data for Baluchistan and all the divisions of Northern India from the 10th to the 16th in illustration :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	10th January.	11th January.	12th January.	13th January.	14th January	15th January.	16th January.
	°	°	°	°	°	°	°
Baluchistan	+3·8	+6·0	+8·4	+15·2	+10·4	−3·0	−2·6
Sind	−3·3	−1·6	+0·1	+2·9	+3·4	+2·8	+1·3
Rajputana	+2·7	+1·0	−0·2	+0·2	+0·4	+2·1	+3·0
Punjab	−0·4	−1·6	−0·7	+0·6	−1·2	+1·1	+1·5
North-Western Provinces and Oudh.	+2·7	+2·2	+0·5	+0·3	+1·0	+1·9	+2·3
Central India	+2·5	+3·5	+1·4	−1·8	−0·7	+2·8	+3·7
Central Provinces	+3·9	+4·1	+1·9	−0·6	−2·2	−0·3	+1·3
Chota Nagpur	+3·5	+1·9	+1·8	−0·5	−0·4	+0·7	+2·9
Bihar	+3·3	+1·7	+0·9	+1·8	+2·5	+2·2	+3·0
Orissa	+2·4	+1·5	+2·1	−0·1	−2·4	−2·3	−2·1

Quiet weather with very high temperature prevailed over the greater part of the Peninsula during this period. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	10th Jan.	11th Jan.	12th Jan.	13th Jan.	14th Jan.	15th Jan.	16th Jan.
	°	°	°	°	°	°	°
Berar	+5·9	+6·3	+4·6	+3·9	+1·8	+1·8	+2·2
West Coast	+4·1	+2·3	+1·8	+1·2	+0·4	+1·3	+0·7
Bombay Deccan	+4·0	+4·3	+4·6	+4·2	+4·2	+3·1	+2·1
Mysore	+0·2	+1·8	+2·5	+1·9	+2·2	+1·9	−0·4
Madras Deccan	+1·1	+1·2	+1·3	+1·2	+1·3	+0·2	−0·7
Madras Coast	+1·8	+3·1	+2·6	+3·3	+3·4	+2·6	+1·4
South India	−0·2	−1·5	−1·1	+0·3	−0·6	−0·6	−0·5

On the 17th a change commenced. A small area of lower temperature than usual appeared over Gujarat and thence apparently extended in a broad band right across the head of the Peninsula. To the south of this band the mean temperature was in slight to moderate excess, while to the north and north-west it was in very large excess. This distribution of temperature lasted until the 23rd, and during this time the mean temperature was in very large excess in the north-west. This is shown by the data of the following table:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	17th Jan.	18th Jan.	19th Jan.	20th Jan.	21st Jan.	22nd Jan.	23rd Jan.
	°	°	°	°	°	°	°
Gujarat	−0·2	+1·7	+0·4	+3·0	+5·4	+5·7	+6·2
Sind	+1·4	+2·1	+6·3	+11·8	+9·8	+8·1	+6·8
Rajputana	+3·1	+1·6	+2·1	+6·2	+9·8	+11·4	+9·3
Punjab	+1·5	+2·4	+3·3	+5·9	+6·0	+6·5	+5·6
North-Western Provinces and Oudh.	+1·9	+1·5	+0·2	+0·9	+2·1	+2·5	+4·4

The area of greatest excess appears to have had a progressive movement to the eastward. This is shown by the following statement which gives the two stations with the largest excess for each day from the 19th to 23rd:—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
19th January	Kurrachee	+ 8·3
	Mooltan	+ 6·2
20th ,,	Hyderabad (S)	+13·0
	Jacobabad	+12·8
21st ,,	Bikaner	+12·2
	Jacobabad	+10·8
22nd ,,	Bikaner	+13·2
	Ajmer	+13·2
23rd ,,	Ajmer	+11·5
	Neemuch	+10·9

On the 24th the mean temperature was in excess practically everywhere. An area of relatively low temperature was, however, shown over Ceylon, and this area gradually extended northward, finally embracing nearly the whole of the Peninsula. The following gives comparative data from the 24th to the 29th in illustration:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	24th January.	25th January.	26th January.	27th January.	28th January.	29th January.
	°	°	°	°	°	°
Ceylon	−2·0	−0·8	+0·9	−0·2	+0·4	−0·9
South India	+0·4	−3·5	−2·4	−0·6	−0·8	−1·2
Mysore	+1·0	0	−1·6	−2·4	−1·4	+0·2
Madras Coast	+0·5	−0·1	−0·8	+0·2	−0·4	−0·9
Madras Deccan	+1·7	+1·4	+0·4	−1·2	−0·8	+0·6
Bombay Deccan	+2·2	+2·5	+1·8	+1·3	+0·6	+1·8
West Coast	−0·5	−0·4	+0·5	+0·6	+0·2	−0·3

During these six days excessive temperature prevailed uninterruptedly over Northern India, the amount of the excess decreasing from the west where it was very large to the east where it was considerable in amount. This is shown in the following statement:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	24th January.	25th January.	26th January.	27th January.	28th January.	29th January.
	°	°	°	°	°	°
Baluchistan	+8·0	+17·3	+19·1	+14·7	+7·3	−13·8
Sind	+6·4	+7·0	+7·0	+6·0	+8·9	+3·3
Gujarat	+4·9	+5·2	+6·7	+7·6	+7·2	+5·3
Rajputana	+6·1	+5·9	+7·8	+7·9	+10·0	+8·1

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	24th January.	25th January.	26th January.	27th January.	28th January.	29th January.
	°	°	°	°	°	°
Punjab	+5·2	+5·5	+6·9	+6·9	+7·3	+8·7
North-Western Provinces and Oudh.	+4·3	+3·7	+3·3	+3·0	+4·2	+7·1
Central Provinces	+4·7	+4·7	+2·0	+1·3	+2·5	+4·0
Central India	+4·5	+4·6	+4·0	+4·1	+5·9	+7·8
Berar	+3·9	+4·1	+4·0	+2·7	+2·5	+2·0
Chota Nagpur	+3·0	+5·1	+1·4	+0·8	+1·4	+2·4
Bihar	+4·1	+5·2	+3·5	+3·2	+3·1	+3·8
Orissa	+1·0	+2·2	+1·2	+0·6	−0·5	+0·3
Bengal	+2·0	+3·0	+3·3	+2·5	+2·1	+3·1
Assam	+1·4	+0·9	+0·5	+1·6	+1·9	+2·4

On the 28th there was some snow in Kashmir and probably in the Afghan region. This was followed by an outset of cool north-west winds from the mountain region around the North-West Frontier and by a brisk to rapid fall of temperature This fall appeared over the Indus Valley on the 29th and extended all over North-West India on the 30th when temperature was reduced considerably below the normal. At the same time the temperature rose over North-East India, and the area of greatest excess of temperature was transferred to Bengal. This change in the distribution of temperature was very large and carried out very suddenly, as is shown by the following statement which gives comparative temperature data for Baluchistan and the different divisions of Northern India from the 29th to the 31st :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	29th January.	30th January.	31st January.
	°	°	°
Baluchistan	−13·8	−14·9	−11·0
Sind	+3·3	−5·5	−5·5
Gujarat	+5·3	−0·6	−3·3
Rajputana	+8·1	−0·9	−6·8
Punjab	+8·7	−0·2	−3·1
North-Western Provinces and Oudh	+7·1	+7·6	+1·3
Central India	+7·8	+7·6	+0·4
Chota Nagpur	+2·4	+6·7	+7·1
Bihar	+3·8	+5·5	+7·2
Orissa	+0·3	+2·6	+3·0
Bengal	+3·1	+5·1	+6·0
Assam	+2·4	+2·8	+2·7

Pressure.—Pressure was, on the average of the whole Indian area, 0·012″ lower than usual. Relatively to the general condition, pressure was in excess over Kathiawar, Gujarat, parts of Rajputana, Central India and the Central Provinces and over the west of the Peninsula (except the coast districts). It was likewise in excess over the submontane districts of the Punjab, part of the submontane districts of the North-Western Provinces, North and South-West Bengal and Burma (except the coast districts). The positive anomalies were everywhere small and in most cases less than 0·010″.

Pressure was generally in slight relative defect over the remainder of India, but the negative anomalies were also generally small and unimportant, only exceeding 0·020″ at the two stations for which data are given below :—

STATION.	Variation from normal of mean 8 A.M. pressure of January 1902.	Pressure anomaly, January 1902.
	″	″
Peshawar	−·041	−·029
Jacobabad	−·033	−·021

The most important feature of the pressure conditions of the month was the excess of pressure at the hill stations in Northern India as compared with the neighbouring plains. The vertical pressure anomaly was as much as +0·115″ for Leh and Lahore, +0·067″ for Murree and Peshawar, and +0·086″ for Quetta and Jacobabad.

The following table gives the mean pressure variations and anomalies of the month for the eleven meteorological provinces :—

METEOROLOGICAL PROVINCE.	Variation from normal of mean 8 A.M. pressure of January 1902.	Pressure anomaly, January 1902.
	″	″
Burma Coast and Bay Islands	−·013	−·002
Burma Inland	+·008	+·020
Assam	−·013	−·001
Bengal and Orissa	−·017	−·005
Gangetic Plain and Chota Nagpur	−·015	−·003
Upper Sub-Himalayas	−·012	0
Indus Valley and North-West Rajputana	−·020	−·010
East Rajputana, Central India and Gujarat	−·010	+·002
Deccan	−·013	−·001
West Coast	−·014	−·002
South India	−·010	+·001

Temperature.—The variations of the temperature conditions of the month were large and strongly marked, due to the exceptionally fine weather which prevailed throughout the month.

The mean day or maximum temperature was higher than usual over the whole Indian area excepting the south of the Peninsula, South-West Bengal and parts of Burma where it was in defect of the normal by small amounts.

The mean maximum temperature of the month ranged between $2\frac{1}{2}^\circ$ and $3\frac{1}{2}^\circ$ above the normal over the submontane districts of Bengal and the North-Western Provinces, the Central Provinces, the Deccan and the Bombay Coast; between $4\frac{1}{2}^\circ$ and $5\frac{1}{2}^\circ$ over Gujarat, Berar, Rajputana, Sind and the greater part of the Punjab and between 6° and $7\frac{1}{2}^\circ$ in the North Punjab and the Frontier Province. The excess ranged between 2° and 14° at the hill stations in the north-west.

The mean minimum temperature of the month was below the normal over a large part of North-West India, over the submontane districts of Assam and Bengal and over the extreme south of the Peninsula. The deficiency was generally small except in the extreme north-west where it amounted to 3°·8 at Khushab, 3°·4 at Dera Ismail Khan, 2°·7 at Montgomery and 2°·5 at Rawalpindi. Over the remainder of India the mean minimum or night temperature was in excess of the average, more particularly over the South Konkan Coast, the Bombay Deccan, Khandesh, Gujarat, Berar and the Central Provinces. The excess was more than 3° at the following stations:—

Station.	Mean minimum temperature.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Goa	72·3	67·8	+4·5
Surat	60·3	56·5	+3·8
Amraoti	61·5	57·8	+3·7
Saugor	55·2	51·8	+3·4
Khandwa	55·1	51·8	+3·3
Bassein	64·9	61·7	+3·2
Mormugao	72·0	68·9	+3·1

Very low night temperatures were recorded over the plains of Northern India during the first fortnight of the month, as is shown below:—

Date.	Station.	Minimum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
1st January	Hyderabad (Sind)	44·0	50·8	— 6·8
	Bikaner	43·1	49·6	— 6·5
2nd ,,	Umballa	33·0	43·0	—10·0
	Roorkee	34·3	43·0	— 8·7
3rd January	Khushab	30·9	40·5	— 9·6
	Umballa	33·5	43·0	— 9·5
4th ,,	Umballa	32·0	43·0	—11·0
	Cawnpore	36·5	46·6	—10·1
5th ,,	Dera Ismail Khan	28·0	39·2	—11·2
	Khushab	30·5	40·6	—10·1
6th ,,	Khushab	27·4	40·7	—13·3
	Rawalpindi	26·0	36·8	—10·8
7th ,,	Khushab	31·4	40·7	— 9·3
	Montgomery	32·0	41·3	— 9·3
8th ,,	Dera Ismail Khan	28·5	39·7	—11·2
	Khushab	30·4	40·8	—10·4
9th ,,	Jacobabad	34·5	42·9	— 8·4
	Dera Ismail Khan	31·5	39·8	— 8·3
10th ,,	Jacobabad	32·0	43·0	—11·0
	Khushab	30·4	40·9	—10·5
11th ,,	Khushab	29·4	41·0	—11·6
	Dera Ismail Khan	31·0	40·1	— 9·1
12th ,,	Montgomery	33·5	41·9	— 8·4
	Dera Ismail Khan	33·0	40·2	— 7·2
13th ,,	Umballa	36·0	43·0	— 7·0
	Khushab	35·4	41·1	— 5·7
14th ,,	Sirsa	36·5	43·2	— 6·7
	Bikaner	43·1	49·6	— 6·5

These low temperatures were not felt on the hills where during the same period the night temperature was generally normal.

The mean temperature of the month was higher than usual over the whole area except the south of the Peninsula where it was in trifling defect. The excess was more than 2°·0 over the submontane districts of Northern India as well as within a large area which included the greater part of the Bombay Presidency, Rajputana, Central India, Berar, the Central Provinces and the Deccan. On the hills the mean temperature was between 2°·0 and 6°·0 above the normal, while the largest excess on the plains was 4°·0 at Khandwa.

The following table gives variation data for the eleven meteorological provinces : —

METEOROLOGICAL PROVINCE.	VARIATION OF ACTUAL FROM NORMAL OF		
	Mean maximum temperature, January 1902.	Mean minimum temperature, January 1902.	Mean daily temperature, January 1902.
	°	°	°
Burma Coast and Bay Islands	+0·1	+1·0	+0·6
Burma Inland	—0·5	+1·3	+0·4
Assam	+1·3	—0·1	+0·6
Bengal and Orissa	+1·3	+0·5	+0·9
Gangetic Plain and Chota Nagpur.	+2·5	+0·2	+1·4
Upper Sub-Himalayas	+4·2	—0·7	+1·8
Indus Valley and North-West Rajputana.	+5·2	—1·4	+1·9
East Rajputana, Central India and Gujarat.	+3·5	+1·3	+2·4
Deccan	+2·8	+2·0	+2·4
West Coast	+0·7	+1·6	+1·2
South India	0	+0·5	+0·2

Winds.—The wind was more northerly than usual over Burma and as far north as Chittagong and the velocity was less than usual over this region. A well marked north-westerly current prevailed down the Gangetic Plain and into Bengal. The velocity of this current was generally low except in Bengal but the steadiness was above the average over a large part of Northern India—more particularly in Upper India and Bengal. Over the Peninsula the winds were unusually easterly. The steadiness was greater than usual in the south and less than usual in the north while the velocity varied irregularly from the average. There was somewhat more southing than usual in the winds at the hill stations and the velocity over the North-West and Central Himalayas was greater than usual. In the South-East Trades region the winds blew from the normal direction but were stronger than the average.

Humidity.—The air was drier than usual over the whole of Burma and India with the exception of four small areas where the relative humidity was in excess. The first area was represented by Chitaldroog (+ 4); the second by Madras (+ 4) and Salem (+ 5); the third by Rangoon (+ 1) and the fourth by Chittagong (+ 4). The mean humidity of the month was most largely in defect on the hills and plains of Upper India where it was largely below the normal at Leh (−31), Peshawar (−17), Ludhiana (−18), Simla (−19), Chakrata (−16), and Dehra Dun (−13). The dryness of the air was to a considerable extent a temperature effect but was also due to the amount of aqueous vapour present in the air being more or less below the normal.

The following table gives variation data of the mean aqueous vapour pressure and humidity of nine meteorological provinces for the month :—

METEOROLOGICAL PROVINCE.	MEAN ABSOLUTE HUMIDITY.		MEAN RELATIVE HUMIDITY.	
	Average actual, January 1902.	Variation of actual from normal, January 1902.	Average actual, January 1902.	Variation of actual from normal, January 1902.
	"	"	%	
Burma Coast and Bay Islands.	·656	—·001	68	— 3
Bengal and Orissa	·498	+·017	72	— 2
Gangetic Plain and Chota Nagpur.	·329	—·005	58	— 4
Upper Sub-Himalayas	·233	—·049	54	—12
Indus Valley and North-West Rajputana.	·251	—·017	47	— 9
East Rajputana, Central India and Gujarat.	·216	—·048	34	—12
Deccan	·318	—·018	42	— 5
West Coast	·612	+·029	67	— 2
South India	·463	+·001	59	0

Cloud.—There was somewhat more cloud than usual in January over Deltaic Burma, as well as locally at the stations of Salem and Khandwa. The excess was small and unimportant at most places but was large (+2·2) at Rangoon. Over the whole of the remainder of the Indian region cloud was more or less considerably below the normal and skies were unusually clear over the large area including the north-west dry area and the submontane and hill districts of Northern India. The cloud amount was most largely in defect at Srinagar (−4·6), Simla (−3·1) and Ludhiana (−2·9). The deficiency in the cloud amount extended westward over Baluchistan and probably still further westward over Persia as at Aden the cloud amount was below the normal.

The following table gives variation data of the mean cloud amount of nine meteorological provinces for the month under review :—

METEOROLOGICAL PROVINCE.	MEAN CLOUD AMOUNT.	
	Average actual, January 1902.	Variation of actual from normal, January 1902.
Burma Coast and Bay Islands	3·0	+0·8
Bengal and Orissa	1·0	—0·6
Gangetic Plain and Chota Nagpur	1·5	—0·4
Upper Sub-Himalayas	1·5	—2·3
Indus Valley and North-West Rajputana	1·8	—1·7
East Rajputana, Central India and Gujarat	1·9	—0·8
Deccan	1·6	—0·1
West Coast	0·5	—0·6
South India	2·5	—0·2

Rainfall.—The rainfall of the month was less than the normal over Baluchistan and the greater part of Northern and Central India. In Southern India, on the other hand, the rainfall of the month was largely in excess, more especially in the southern districts which obtained three to ten times their normal amount. The rainfall in this area occurred almost entirely between the 3rd and the 8th and was due to a strong influx of north-east winds from the Bay.

There were in all five disturbances during the month in Northern and Central India. They were, however, very feeble and ill-defined and gave much less rain than ordinarily accompanies these storms. The first two disturbances of this series originated in the Indian area itself and gave numerous thunder showers to Central India, East Rajputana, Gujarat, parts of the North-Western and Central Provinces, South Bihar and Chota Nagpur, between the 4th and the 10th or 11th. The other three disturbances, passed into India from the plateau area to the west, and were not of much importance, their influence on the weather in India being very slight.

The following table which gives rainfall data for eleven meteorological provinces of the empire shows that absolutely no rain fell in the Upper Sub-Himalayas and the Indus Valley and North-West Rajputana, and practically no rain in the Burma Coast and Bengal and Orissa. The rainfall of the month averaged less than half an inch in total amount in six out of the seven remaining divisions and was above the average only in the West Coast and South India. The excess was insignificant in the West Coast but amounted to 1·46 inches in South India. The amount of rain received in ordinary years in the plains of India during January is small and hence the deficiency over Northern and Central India was not large in actual amount. It was, however, serious in so far as it emphasized the drought already prevailing in that area :—

Meteorological Province.	Rainfall.			
	Mean actual for January 1902.	Mean normal for January.	Variation of actual from normal, January 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands.	0·07	0·26	—0·19	— 73
Burma Inland. . .	0·14	0·21	—0·07	— 33
Assam	0·38	0·82	—0·65*	— 79
Bengal and Orissa . .	0·03	0·43	—0·40	— 93
Gangetic Plain and Chota Nagpur.	0·17	0·65	—0·48	— 74
Upper Sub-Himalayas .	0	1·67	—1·67*	—100
Indus Valley and North-West Rajputana.	0	0·57	—0·57	—100
East Rajputana, Central India and Gujarat.	0·20	0·27	—0·05*	— 19
Deccan	0·17	0·23	—0·05*	— 22
West Coast . . .	0·40	0·22	+0·19*	+ 86
South India . . .	1·82	0·36	+1·46	+406

* A reference to Table I will show that the means of columns 2 and 3 are derived from a smaller number of stations than the means in the 1st column. The sum of the figures in columns 2 and 3 will, therefore, not agree with the figures in column 1.

Atmospheric Pressure.

The barometers in use at the great majority of stations in India are mercurial barometers on Fortin's principle, and are generally Casella's small observatory standards with tubes 0·4 inch in diameter.

Casella's observatory barometers on the Kew principle (with a contracted scale to compensate for changes of level of the mercury in the cistern) are in use at the following stations :—

Aden.	Cuddapah.	Moulmein.
Akyab.	Dinajpur.	Mymensingh.
Arrah.	Dunga (Zanzibar).	Negapatam.
Barisal.	Faridpur.	Noakhali.
Bhamo.	Gorakhpur.	Nowgong.
Bogra.	Hyderabad Sind.	Perim.
Bushire.	Jacobabad.	Rangpur.
Chapra.	Jalpaiguri.	Sambhar.
Cochin.	Kindat.	Tavoy.
Cocos Island.	Mangalore.	Toungoo.
Comilla.	Midnapore.	Zanzibar.

The instruments at the following stations are by various makers and of various kinds, but are being gradually replaced by Casella's small observatory standard barometers :—

Amini Divi.	Kurnool.	Wellington.
Dehra.	Patiala.	
Katmandu.	Six Islands (Chagos).	

At Bombay and Calcutta large Newman's standards on Fortin's principle, with adjustable scales and tubes of more than 0·5″ in diameter, are in use.

All instruments are carefully compared at Calcutta before issue, and their corrections determined to the Calcutta standard, which is believed to be ·011″ higher than the Kew standard.

The barometers are kept in all cases in masonry buildings to protect them as much as possible from changes of temperature.

The elevations of the barometers of all stations, with the exception of Minbu, Bhamo, Maymyo, Tezpur, Dibrugarh, Chaibassa, Daltonganj, Purulia, Patiala, Bikaner, Pachpadra, Kotah, Veraval, Dwarka, Indur, Bidar, Mormugao,

Periyakulam, Waltair, Sonemarg, Astor, Minimarg, Skardu, Dras, Kailang, Chitral, Cherat, Mussooree, Muktesar, Gantok, Ootacamund, Teheran, Ispahan, Jask, Baghdad, Busrah, Kashgar and Dunga (Zanzibar) have been obtained as accurately as possible. In the great majority of cases they have been referred to datum levels determined by the Great Trigonometrical Survey of India.

The readings of the barometers are reduced to 32° F., and are corrected to constant gravity (Lat. 45°), and in the case of all stations, the elevations of which are accurately known and are below 3,500 feet, to sea-level. Each reading is separately corrected, and the means of the month are the means of the daily corrected readings.

In Table I, columns 2 to 8, under the general heading "Pressure 8 A.M. in inches," are given for each station the 8 A.M. barometric data of the month, including the mean 8 A.M. pressure reduced to 32° F., and its variation from the normal mean pressure (reduced to 32° F.) of the month, the mean 8 A.M. pressure corrected to constant gravity and to sea-level, the highest and the lowest pressures and their respective dates of occurrence and the total range of 8 A.M. pressure during the month.

In Table II, under the heading "Pressure," are given the monthly means of the two hours of observation, 10 A.M. and 4 P.M., reduced to 32°F., the mean daily range, the mean daily pressure reduced to 32°F. and its variation from the normal, and the mean daily pressure reduced to 32°F. and corrected to constant gravity and sea-level for all second class observing stations. The mean daily pressures have been obtained for all stations except Jamnagar, Muktesar, Mysore, Udaipur, Waltair, Wellington, Zanzibar and the Seychelles (for which crude means are used) by taking the means of the 10 and 16 hours' observations and applying corrections for each month, derived from the observations of the same or neighbouring stations, to give true daily means. For Kodaikanal and Periyakulam, the means are taken from the readings of a Richard barogram.

The distribution of the mean 8 A.M. pressure of the month is shown by means of two charts. The first chart (Plate I) shows the distribution of the mean pressure of the month reduced to sea-level and to constant gravity (that of Lat. 45°) by means of isobars drawn for differences of pressure of 0·05 or $\frac{1}{20}$th of an inch. The second chart (Plate II) gives the variations of the actual mean 8 A.M. pressure reduced to 32° F. from the normal pressure.

The normal 8 A.M. daily and monthly means of pressure utilized in the pressure section of the review have been deduced from the barometric observations of the sixteen years' period 1878—99, the same period being selected for all stations (with ten or eleven exceptions), in order that the means may be fairly comparable.

A small chart, No. 4 of Plate III, gives the distribution of the monthly mean daily pressure corrected to standard gravity and to sea-level, and of the mean winds, in the same form and manner as in the monthly charts issued with the annual reports on the meteorology of India, previous to the year 1891. The data on which this chart is based will be found in Table II.

The monthly means employed in the determination of the variations of the mean actual from the mean normal pressures of the month given in Table II are derived from all the available trustworthy pressure data for each station, and hence are the means for very varying numbers of years, ranging from four years in the case of the Seychelles to fifty years in the case of Bombay.

The more important barometric changes and movements during the month are described in the statement of the barometric depressions of the month. The data that are chiefly used in that discussion are the 8 A.M. reduced observations and the variations derived from comparison of these observations with the normal daily or monthly 8 A.M. values.

The mean pressure of the whole Indian land area for January 1902 was 0·012″ below the normal.

Relatively to this general condition, the pressure was in excess in two large and four small areas. The first large area included the Sind coast, Kathiawar, the west of Central India and of the Central Provinces, Khandesh and the west of the Peninsula (except the coast districts). The second large area included Burma (except the coast districts) and Cachar. The four small areas of excess covered (1) North Bengal (2) South-West Bengal (3) the submontane districts of the Punjab and (4) the submontane districts of the North-Western Provinces. In all these areas the anomalies were small or slight at no station amounting to 0·02″. Over the whole of the remainder of India the pressure, relatively to the general condition, was in defect but the negative anomalies were as small as the positive except in the upper part of the Indus Valley where pressure was in slight defect. The following gives data for those stations at which the negative anomalies were —0·015″ or more in amount:—

Station.	Variation from normal of mean 8 A.M. pressure of January 1902.	Pressure anomaly, January 1902.
	″	″
Peshawar	—·041	—·029
Jacobabad	—·033	—·021
Nowgong	—·029	—·017
Barisal	—·029	—·017
Dinajpur	—·028	—·016
Mooltan	—·027	—·015
Dera Ismail Khan	—·027	—·015

Pressure was very steady during the month and the changes from day to day, in the absence of all important cyclonic storms, were small, so that, as shown above, the resultant variations at the close of the month were also small and unimportant. Pressure, on the mean of the month, was highest in the Frontier Province and the North Punjab. It was relatively high over Eastern Rajputana and the Brahmaputra Valley and was low over the south-east of the Arabian Sea and the south of the Bay. The general distribution was approximately normal but the barometric gradient was slightly less than the normal.

The chief feature of the pressure conditions of the month was the marked contrast between the pressure conditions prevailing in the middle strata of the atmosphere and those prevailing at the level of the plains in Northern India. At all the hill stations in the Himalayas and Baluchistan pressure was more or less in excess of the normal, the excess being most marked over the inner ranges of Kashmir. The following gives comparative data for the stations in the Himalaya and Baluchistan hill regions :—

Hill Station.	Variation from normal pressure, January 1902.	Plain Station.	Variation from normal pressure, January 1902.	Vertical pressure anomaly (Hill—Plain).
	"		"	"
Quetta . .	+·053	Jacobabad . .	—·033	+·086
Leh . . .	+·099	Lahore . .	—·016	+·115
Murree . .	+·026	Peshawar . .	—·041	+·067
Simla . . .	+·038	Ludhiana . .	—·009	+·047
Chakrata . .	+·010	Roorkee . .	—·009	+·019
Ranikhet . .	+·014	Bareilly . .	—·013	+·027
Darjeeling . .	+·018	Dhubri . .	—·017	+·035

The above shows that the vertical pressure anomalies were positive and large, more particularly in the case of Leh and Lahore. The following gives comparative data for the same pairs of stations for January 1901, when the weather was very unsettled and showery, and a comparison of the two sets of conditions shows the pressure conditions in a vertical direction which accompany an open and rainless cold weather and those which accompany an unsettled winter:—

Hill Station.	Variation from normal pressure, January 1901.	Plain Station.	Variation from normal pressure, January 1901.	Vertical pressure anomaly (Hill—Plain).
	"		"	"
Quetta . .	—·015	Jacobabad . .	+·009	—·024
Leh . . .	—·052	Lahore . .	+·016	—·068
Murree . .	—·017	Peshawar . .	0	—·017
Simla . . .	—·039	Ludhiana . .	+·014	—·053
Chakrata . .	—·026	Roorkee . .	+·016	—·042
Ranikhet . .	—·013	Bareilly . .	+·013	—·026
Darjeeling . .	+·031	Dhubri . .	+·009	+·022

At the central and southern hill stations, the variations of the mean pressure at the level of the hill stations were similar to, and of the same amount as, those at the level of the plains. The following gives comparative data for three pairs of stations :—

Hill Station.	Variation from normal pressure, January 1902.	Plain Station.	Variation from normal pressure, January 1902.	Vertical pressure anomaly (Hill—Plain).
	"		"	"
Mount Abu .	—·002	Deesa . .	—·021	+·019
Pachmarhi .	—·011	Khandwa . .	—·015	+·004
Wellington .	—·008	Coimbatore .	—·007	—·001

The two cold weathers which were, to a certain extent, similar to that of 1901-02, were those of 1898-99 and 1889-90, and the following gives the vertical pressure anomalies for January of 1902, 1899 and 1890 for comparison :—

Stations.	Vertical pressure anomaly (Hill—Plain) of		
	January 1902.	January 1899.	January 1890.
	"	"	"
Quetta—Jacobabad . . .	+·086	+·010	+·085
Leh—Lahore	+·115	+·019	+·073
Murree—Peshawar	+·067	—·040	+·029
Simla—Ludhiana	+·047	—·043	+·042
Chakrata—Roorkee	+·019	—·024	+·114
Ranikhet—Bareilly	+·027	—·026	...
Darjeeling—Dhubri . . .	+·035	—·032	+·037
Mount Abu—Deesa . . .	+·019	—·030	...
Pachmarhi—Khandwa . . .	+·004	—·042	...
Wellington—Coimbatore . . .	—·001	—·016	...

Barometric depressions and cyclonic storms of the month.

At the beginning of the month, pressure was in slight to moderate defect in South India, Ceylon and the south of the Bay, and in slight excess over Northern India. Gradients were hence somewhat steeper than usual over the Bay, where the winter monsoon was blowing somewhat more strongly than usual and giving much cloud to the south of the Peninsula and Ceylon. Weather was fine with clear skies over Northern and Central India. The barometric changes during the next 24 hours were such as tended to emphasize the abnormal distribution of pressure prevailing on the previous day. Winds hence increased rapidly in force in the Bay, and rain commenced to fall in the east of Ceylon. A brisk to rapid fall of the barometer took place over nearly the whole of India on the 3rd and 4th, the fall being on the whole greatest in the West Coast districts. An important effect of these changes was

to displace the area of greatest deficiency of pressure westwards from Ceylon to Malabar. The indraught to this area of deficient pressure occasioned a rush of strong north-east winds from the Bay across the south of the Peninsula, and a moderate to heavy burst of rain occurred over Southern India to the south of Lat. 12°N., between the 3rd and the 8th, several stations receiving falls of over 4 inches in 24 hours. The rainfall due to this burst was most abundant in the districts of Madura, Tanjore and Tinnevelly, data for which are given in the following table:—

District.	Average actual rainfall in district during 24 hours preceding 8 A.M. of						
	3rd January.	4th January.	5th January.	6th January.	7th January.	8th January.	Total for the period, 3rd to 8th January.
	Inches	Inches	Inch	Inch	Inches	Inches	Inches
Tanjore . . .	1·65	2·17	0·65	0·02	0·31	0·64	5·44
Madura . . .	1·17	0·21	0·19	0·43	0·82	1·08	4·90
Tinnevelly . . .	1·68	0·41	0·05	0·86	1·22	1·22	5·44

A steady rise of the barometer on the 6th and 7th resulted in the restoration of normal pressure conditions in the Peninsula on the 8th, during which day the rainfall ceased suddenly in Southern India and fine dry weather set in over that area on the 9th and held uninterruptedly throughout nearly the whole of the remainder of the month.

Weather was fine with clear skies in Northern and Central India during the first three days of the month. On the 4th a slight depression formed in Berar and drifting rapidly north-eastwards during the next twenty-four hours passed into the eastern districts of the North-Western Provinces on the morning of the 5th, where it filled up on the 6th. The disturbance was very shallow and ill-defined. It, however, occasioned numerous thunder showers in Chota Nagpur, the south-east of the North-Western Provinces and the central districts of the Central Provinces on the 5th and 6th. These showers were heaviest in the Mirzapur district which obtained an average of 0·70 inch on the 6th.

On the 7th pressure gave way locally in Gujarat, Khandesh and Rajputana, and a depression was in course of formation. Like the previous disturbance, it marched north-eastwards and lay over the area represented by the stations of Agra and Jaipur on the morning of the 8th as a closed low pressure area. It, however, broke up rapidly during the day. The disturbance was somewhat more influential than its predecessor and occasioned a series of thunderstorms over the Central India Plateau, Gujarat and the West Satpuras. The amounts recorded exceeded 1 inch at several stations in this region, the largest being 3·50 inches at Birsinghpur in Bundelkhand and 2·20 inches at Rutlam.

Very quiet weather obtained over the whole Indian monsoon area on the 9th and 10th. On the 11th a change set in over West Persia where pressure gave way rapidly, winds changed to south-east and skies clouded over. These conditions advanced eastwards through East Persia and Baluchistan on the 12th and 13th, Sind on the 14th, Rajputana on the 15th and into Bihar and the neighbouring districts of the North-Western Provinces on the 16th. They exercised practically no effect on the weather in Northern and Central India. Light showers, however, fell in Baluchistan on the 13th and 14th.

On the 17th another feeble depression began to form in West Persia. It intensified considerably on the 18th, at 8 A.M. of which day pressure was a fifth of an inch below the normal at Bushire. The disturbance drifted eastwards from West Persia on the 18th into East Persia and Baluchistan on the 19th, Sind on the 20th and 21st, North-Rajputana and the South Punjab on the 22nd and the central districts of the North-Western Provinces on the 23rd. It had, however, even less influence on the weather than the previous disturbance and the only precipitation due to it was restricted to the higher ranges in Kashmir which obtained light falls of snow.

On the 23rd and 24th, there was a tendency to the formation of a depression in Sind. It, however, failed to develop. On the 25th an elongated low pressure area was shown stretching from the Deccan to South-West Bengal. It drew the wind into southerly directions in the north-west angle of the Bay but had no effect on the weather.

The most important feature of the weather during the remainder of the month in India was a feeble disturbance which formed in Pesia on the 24th and 25th and passing eastwards reached the North-West Frontier on the 27th.

It intensified slightly during the next 24 hours and marched north-eastwards into the Punjab to which it gave strong squally winds on the 28th and 29th. It, however, occasioned no rain beyond a few light showers of little importance in the Simla and Kangra hills. Weather was feebly disturbed in Kashmir and light snow showers occurred in that area. The disturbance broke up almost completely in the Punjab hills on the 29th. A very slight residual depression was, however, transmitted eastwards along the foot of the Himalayas during the next two days and lay over North Bengal at the end of the month.

The preceding summary of the weather in the Indian region shows that although five depressions formed or appeared in Northern and Central India during the month they were without exception very ill-defined and feeble and did not exercise any important influence on the weather in that area. The month was hence unusually dry over the greater part of Northern India, in this respect resembling the corresponding period of 1899.

All the three depressions which originated in the Persian area and advanced into India were mere low pressure waves and exercised even less effect on the weather in North-West India than the ill-defined disturbances which formed locally in Gujarat and the Central Provinces.

It may be noted in this connection that pressure was steadily high in the Mediterranean Sea and South-East Europe during nearly the whole month, and that the storms of the month in Europe marched considerably further north than usual.

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) Kabul (December and January):—Light falls of snow occurred at Kabul on the 10th and 26th December and 28th January. The Paghman hills were covered with snow at the end of January.

(2) No snow fell on the Samana range or other mountains in the Kohat district or in Wano.

(3) The officer on special duty, Kurram, reports:—

"Snow fell on the Sufed-koh on the 14th, 20th, 21st, 25th, 26th, 28th and 29th January. The falls were very light and did not extend to Parachinar." The Civil Surgeon, Kurram, reports that snow fell on the Sufed Koh on the 14th, 15th, 21st, 25th, 26th, 27th, 28th, 29th and 30th January, and that the accumulation of snow at the end of the month was 6 inches on the Paiwar Kotal.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Killa Drosh*—

January 14th.—A slight fall of snow occurred on the tops of the hills north-east of Drosh and also on the Lowari Pass.

" *15th.*—A moderate snowfall occurred on the hill tops to the north-east and west of Killa Drosh and on the Lowari Pass.

" *21st.*—A moderate snowfall occurred on the Lowari Pass and a slight snowfall on the tops of the hills.

" *25th.*—A light snowfall occurred on the neighbouring hill tops.

" *27th.*—Light snow again fell.

" *28th.*—Snow fell on the hills surrounding Drosh and on the Lowari Pass to a depth of 2 feet.

" *29th.*—Snow fell on the ground at Drosh to a depth of 2½ inches, on the hills surrounding Drosh to a depth of 5 inches, and on the Lowari Pass to a depth of 4 feet.

(2) *Murree.*—No snow fell at Murree or on the Kahuta hills during January.

(3) *Leh.*—The only snow which fell in Leh during January was a slight sprinkle on the morning of the 30th, but there were occasional light falls on the surrounding hills.

At the close of the month the snow line lay at about 11,500 feet on the shady side of the mountains and at about 14,000 feet on the sunny side.

(4) *Chamba.*—The following snowfall report has been received from the Deputy Conservator of Forests, Chamba Division:—

DATE.	Kalatop.	Lungera 8000.	Chad Bhent.	Bhandal.	Chatrari.	Olansa.	Khangu.	Chatri.	Alwas.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
29th January .		0 3	0 1		0 1	0 2½	0 5	0 5	0 5
30th " .	0 6	0 3	0 2	0 1	0 2	0 8	0 1	0 1	0 1
31st " .	0 8	0 5	0 3	0 1			0 4	0 4	0 4

At the close of the month the accumulation of snow on the various peaks varied in depth between three and twelve inches.

The snowfall was very late and slight as compared with previous years.

(5) *Kulu.*—Between the 25th December 1901 and the 25th of January 1902, the only snowfall was on the 26th December 1901. This fall occurred only on high peaks.

The following table shows the reported depth of snow on the higher passes in Kulu at the close of January 1902:—

TAHSIL.	Name of pass.	Height above sea level in feet.	Reported depth of snow at the end of January 1902.
			Feet
KULU	Rotang	13,000	4
	Hamta	14,500	2
	Barsai	...	1¾
	Chandarkhani	14,500	1
	Buja Dhar	...	1½
	Luhri Achri	...	1
	Bhubu	10,000	1
	Bastari	...	1
	Sari	...	3
PLACH	Srikhand	15,000	3
	Chul	...	1
	Maghni	...	1
	Dandku	...	1
	Tikar	...	1
	Jalori	10,500	1
	Raghopur	...	1
	Lumbri	...	1
	Sakiran	...	1
	Gargarasan	17,000	2
	Supakun	...	1
	Basleo	11,000	1
	Plach	...	1
	Tirath	...	1

(6) Sutlej Valley.—In the Upper Sultej Valley light snow fell on the 29th and 30th of January to a depth of 1½ inches. The snow melted during the next two days and the snowline on the hills facing south and east was at an elevation of 12,000 feet at the close of the month.

III.—NORTH-WESTERN PROVINCES HIMALAYAS.

(1) The Collector of Almora reports that snow fell as follows:—

Malla Johar.

29th	January	4 feet
30th	„	4 „
		8 feet

Malla Danpur.

29th	January	1 foot
30th	„	1½ „
		2½ feet

The accumulation of snow at the close of the month was as follows:—

Utadhura	8 feet
Ralamdhura	4 „
Pindari, Kaphini, Kantela	2½ „

The snowfall was less than in 1901.

Summary of Special Storm Reports.

The weather during January was quiet and the few local storms reported were slight and of little importance. The following is a record of the storms reports which have been received up to date:

January 6th:—A slight thunderstorm was experienced at Khandwa at 10 P.M. occasioning strong winds and light rain.

„ *8th.*—A similar storm was experienced at Khandwa at 11 P.M.

„ *14th.*—A severe gale was felt at Srinagar from 1 P.M. to 4 P.M. Previous to the storm (13th January) a brilliant solar halo was observed.

„ *28th.*—A duststorm was experienced at Srinagar from 5 P.M. to 10 P.M. followed by a few drops of rain.

January 29th.—A duststorm passed over Srinagar from south-south-east between 1 P.M. and 3 P.M. No rain fell.

Earthquakes:—At 7-30 A.M. on 10th January there was a slight shock of earthquake at Srinagar. At 11 A.M. and 10 P.M. on the 21st and at 6 A.M. on the 25th slight earthquake shocks were felt at Killa Drosh.

Hailstorm reports:—Slight hailstorms were experienced in the Jaipur state at Umara on the 7th and Sanganer on the 8th.

A hailstorm occurred at Alot Pergana in the Dewas state on the 7th.

Slight hailstorms occurred in the Mandsaur, Ujjain and Neemuch districts (Gwalior state) on the 7th and 8th January, damaging the poppy crops.

Brief Summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—Ordinary north-east monsoon winds prevailed steadily over this area throughout the month. The normal force of the winds over the whole area in January is 3·3 and the mean force during the month under review (*viz.* 3·5) was almost identical with the normal. Winds were stronger than usual during five periods, *viz.*, the 1st to the 3rd, the 7th to the 10th, the 14th to the 18th, the 22nd to the 24th and the 28th to the end of the month. The variations of strength from day to day were, however, greater than usual, the mean force over the whole area varying between an average of 2·0 on the 12th and 4·4 on the 9th. Weather was feebly disturbed in the south-east off the Malabar and West Ceylon Coasts, from the 3rd to the 7th, and in the west, in the vicinity of Socotra, from the 12th to the 15th. With these exceptions fine weather with little or no cloud and a smooth sea obtained generally during the whole month.

Weather was unusually quiet in the Persian Gulf due to the absence of cold-weather storms in the Persian area and the north-westerly gales which usually blow down the gulf in the rear of cold weather storms, were hence much less frequent than usual.

Bay of Bengal.—Except for a short period from the 29th to the 31st, when southerly winds were experienced at the head of the Bay, due to low pressure conditions over Bengal, north-east monsoon winds obtained over this area during the whole of the month, but they were not so vigorous as in the Arabian Sea. The baric gradients were considerably steeper than usual during the first seven days of the month and the air movement was about 25 per cent. stronger than usual. Gradients diminished rapidly on the 7th. The air movement hence decreased to an average of 3·3 on the 8th and was practically unchanged from that date to the 19th. Gradients decreased still further in intensity during the next three days and the air movement hence fell to an average of 2·1 on

the 22nd as compared with 3·0, the normal of the month. No change occurred on the 23rd and 24th. The air movement was exceedingly unsteady during the remainder of the month, ranging between 2·4 on the 28th and 3·4 on the 30th.

Weather was unsettled in the south-west of the Bay off the Madras and Ceylon coasts from the 2nd to the 7th, during which period most of the vessels passing through that region experienced heavy squalls and constant rain with a rough sea.

Equatorial Belt.—So far as can be judged from the very meagre information available for this region, the air circulation was of the normal type over the western half of the belt. Weather was, however, much less disturbed than usual, more especially in the extreme west of the belt, as represented by Zanzibar, which obtained only 8 per cent. of its normal rainfall in January.

Temperature of the Air.

The mean temperature data are given in Table I and Table II under the heading "Temperature of Air." In Table I they are based upon observations of the dry bulb thermometers and the maximum and minimum thermometers recorded at 8 A.M. The variations of the mean maximum and mean minimum temperatures from the corresponding normal means for the month are given in Table I for all stations, for which at least eleven years' trustworthy temperature observations are available. With some exceptions (chiefly in Bengal), the normal mean maximum and minimum temperatures of the month have been obtained for all stations from the observations of the same period, *viz.*, 1878 to 1899, and are hence fairly comparable with each other. The mean daily temperature in this table is taken as the mean of the maximum and minimum. It differs from the true mean of the day by small amounts which vary from month to month. But the variations of the mean daily temperature from the normal, as determined by the use of the definition, agree in almost all cases closely with the variations of the true daily means derived from the readings at 16 hours and of the maximum and minimum thermometers, and the employment of corrections deduced from the various series of hourly observations which have been taken at many stations in different parts of India.

It should be noted that the mean temperature of the day in Table I really denotes the mean temperature of the 24 hours preceding 8 A.M. of the day in question, and the month for which the means are given in this table hence terminates at 8 A.M. of the last day of the month.

In Table II are given means of the 10 and 16 hours temperatures of the month, in addition to maximum and minimum temperature data. The mean temperature of the month (*i.e.*, the arithmetical mean of the mean temperature of each day of the month) is also shown. The mean temperature of the day is obtained by the use of the formula :—

$$\frac{\text{Maximum} + 16\text{ hours} + 2\text{ Minimum.}}{4}$$

and by applying a constant correction for each month, obtained from the hourly observations at the same or a neighbouring station, except in the case of Nagpur (Sanitary Commissioner's Office), Udaipur, Jamnagar, Hyderabad (Deccan), Periyakulam, Mysore, Hassan, Chitaldroog, Waltair, Quetta, Muktesar, Srinagar, Katmandu, Darjeeling, Bangalore, Mount Abu, Wellington, Perim, Zanzibar and Port Victoria (Seychelles) (for all of which crude means are given) and Madras. For Madras the means are those given in the registers sent by that observatory and for Kodaikanal and Periyakulam the means are taken of the readings of a thermograph.

The methods of exposing thermometers will be found fully described in the hand book of instructions to observers in India or briefly in the Annual Report on the Meteorology of India for the year 1886, page 37. All thermometers in use have been verified by comparison with Kew standard thermometers at Calcutta, and all thermometer readings are corrected to their true readings, and are hence strictly comparable.

The variations of the mean temperature of the month given in Table II have been obtained by a comparison of the actual means with normal means calculated in the same manner. The means have been derived from all the available trustworthy temperature data for each station, and hence for very varying numbers of years, ranging from 50 years in the case of Bombay to four years in the case of Port Victoria. It should be noted that the day or 24 hours period in Table II terminates at 4 P.M. (and not at 8 A.M.), and hence the monthly means are for monthly periods ending at 4 P.M. of the last day of the month in question.

The mean distribution of temperature in India in each month is exhibited by means of three charts, which show the variations of the mean maximum, mean minimum and mean daily temperature from their normal values for the month. These charts are Nos. 1, 2 and 3 of Plate III. In these charts equal variations of temperature are indicated by lines, the lines being drawn for differences of 2° of variation. A continuous line indicates that the temperature was in excess by the amount indicated by the number given near the line, and a broken line that it was in defect by the amount indicated by the number placed near the line. The line of no variation, separating areas of excess from areas of deficient temperature, consists of a continuous and of a broken line placed parallel and near to each other, the broken line being on the side of deficient temperature, and the continuous line on that of increased temperature. The variations of the temperature of the month from the normal at the hill stations (*i.e.*, stations the elevations of which exceed 5,000 feet) are given in figures with a positive or negative sign to indicate excess or defect.

Tables of normal mean maximum, minimum and mean daily temperature for each month and for the whole year were given in the annual summary for 1891. Similar tables were given in the annual review of 1894, based on the data for sixteen years, 1878 to 1893.

The general temperature conditions of the month were determined by the persistent fine and dry weather which prevailed throughout.

The mean maximum temperature of the month exceeded the normal over by far the greater part of the country. There were, however, small areas of deficiency in the day temperature. The first covered the south of the Peninsula and the north of Ceylon and the deficiency exceeded 1°·0 at the stations for which comparative data are given below :—

Station.	Mean maximum temperature.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Madura	85·5	87·5	—2·0
Coimbatore	84·9	86·8	—1·9
Trincomalee	81·8	83·3	—1·5
Tinnevelly	86·3	87·7	—1·4
Trichinopoly	86·0	87·4	—1·4

The second was a broken up area covering parts of Burma, while the third covered parts of South-West Bengal and of the Circars and Orissa Coasts. Within these two areas the deficiency was more than 1°·0 at the following stations :—

Province or Division.	Station.	Mean maximum temperature.		
		Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
		°	°	°
Burma	Bhamo	74·5	77·2	—2·7
	Yamethin	86·0	87·2	—1·2
	Rangoon	88·0	89·1	—1·1
Circars Coast	Waltair	81·1	82·5	—1·4
Orissa	Cuttack	83·2	84·5	—1·3

The above shows that the deficiency in the mean monthly day temperatures was small and unimportant. Over the whole of the remainder of India the mean maximum temperature was in excess of the normal. The excess was more than 2°·0 over the whole of the large area which lay to the north-westward and northward of a line which ran south-eastward from Bombay to Bellary, thence northward to Allahabad and thence eastward to Silchar while it was more than 4° over the whole of the North-West Dry Area, the Punjab and the adjacent parts of Rajputana, the Central Provinces and the North-Western Provinces. The excess was 5°·0 or more in amount at the stations for which comparative data are given below :—

Station.	Mean maximum temperature.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Rawalpindi	70·5	63·1	+7·4
Peshawar	69·7	63·5	+6·2
Umballa	74·0	67·8	+6·2
Khushab	73·4	67·6	+5·8
Montgomery	74·0	68·5	+5·5
Mooltan	75·5	70·2	+5·3
Bikaner	77·0	71·8	+5·2
Ajmer	79·2	74·1	+5·1
Jacobabad	78·6	73·6	+5·0

The excess was thus greatest over the Frontier Province and the North Punjab.

The excess in the day temperature, on the mean of the month, was as great or greater at the level of the hill stations as on the neighbouring plains. The following gives comparative data for the north-west hill stations:—

Hill Station.	Mean maximum temperature.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Srinagar	53·2	39·0	+14·2
Cherat	58·8	49·2	+9·6
Murree	54·1	47·2	+6·9
Chakrata	56·9	50·6	+6·3
Simla	50·7	44·5	+6·2
Leh	33·3	29·8	+3·5
Mussooree	52·2	48·9	+3·3
Ranikhet	56·6	54·5	+2·1

The excess, though considerable to large everywhere, was greatest in the Kashmir Valley where, however, peculiar conditions exist. At Mount Abu and Pachmarhi

the day temperature was in moderate to considerable excess while at Wellington in South India it was in trifling defect. This is shown below:—

Hill Station.	Mean maximum temperature.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Mount Abu	69·6	65·6	+3·0
Pachmarhi	74·1	71·3	+2·8
Wellington	66·8	67·6	—0·8

The following gives the highest temperatures recorded in each province during the month under review together with the name of the station recording the reading and the highest maximum previously recorded at that station:—

Province or Division.	Station.	Highest maximum temperature recorded in January 1902.	Date on which recorded.	Highest maximum temperature recorded in January previous to 1902.	Year in which recorded.
		°		°	
Burma	Tavoy	92·7	26th	95·2	1900
Assam	Silchar	85·4	15th	85·4	1900
Bengal	Midnapore	92·3	31st	94·8	1897
Orissa	Cuttack	90·4	30th	95·6	1882
Bihar	Gaya	87·2	31st	87·2	1897
Chota Nagpur	Purulia	90·8	31st	85·3	1900
North-Western Provinces and Oudh.	Jhansi	90·2	29th	92·1	1898
Punjab	Sirsa	85·8	22nd and 29th.	83·6	1884
Sind	Hyderabad	95·1	20th	91·9	1880
Rajputana	Deesa	96·1	27th and 28th.	93·8	1898
Gujarat	Surat	97·7	27th	97·2	1891
Central India	Neemuch	90·5	23rd	90·8	1898
Central Provinces.	Khandwa	95·2	23rd	94·5	1882
Berar	Akola	94·4	23rd	95·9	1900
West Coast	Cochin	93·5	5th and 10th.	95·8	1896
Bombay Deccan	Malegaon	94·4	23rd	94·9	1889
Mysore	Mysore	88·1	24th	90·9	1897
Madras Coast	Vellore	92·9	25th	92·4	1901
Madras Deccan	Kurnool	95·2	24th	97·2	1897
South India	Salem	93·7	23rd	96·7	1890

The above data show that except in Assam, Bihar, Chota Nagpur, the Punjab, Sind, Rajputana, Gujarat, the Central Provinces and Madras Coast the highest maximum temperatures were lower than those previously recorded in January.

The mean minimum temperature of the month was below the normal over the greater part of North-Western India due presumably to the unusual absence of cloud. The deficiency was generally moderate or slight, but was more than 2°·0 at the following places:—

Station.	Mean minimum temperature.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Khushab	37·5	41·3	—3·8
Dera Ismail Khan	37·0	40·4	—3·4
Montgomery	39·5	42·2	—2·7
Rawalpindi	35·4	37·9	—2·5

The minimum temperature, on the mean of the month, was also below the normal over the extreme south of the Peninsula, on the Circars and Orissa Coasts, in North Bengal and the Brahmaputra Valley and locally at Tavoy and Sambalpur, but in all these areas the deficiency was small and of no importance. Over the whole of the remainder of India, the mean night temperature was higher than usual. The excess was considerable in two areas. The first included the South Konkan Coast, the Bombay Deccan, Khandesh, Gujarat, Berar, the greater part of the Central Provinces and part of Central India. The second included part of Lower Burma. The following gives data for the stations at which the excess was more than 2°·0:—

Area.	Station.	Mean minimum temperature.		
		Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
		°	°	°
First area	Goa	72·3	67·8	+4·5
	Surat	60·3	56·5	+3·8
	Amraoti	61·5	57·8	+3·7
	Saugor	55·2	51·8	+3·4
	Khandwa	55·1	51·8	+3·3
	Mormugao	72·0	68·9	+3·1
	Sutna	50·6	47·6	+3·0
	Malegaon	54·8	51·9	+2·9
	Sholapur	61·1	58·2	+2·9
	Bijapur	60·7	58·0	+2·7
	Ahmedabad	59·7	57·0	+2·7
	Ratnagiri	68·8	66·2	+2·6
	Veraval	61·4	58·8	+2·6
	Jhansi	53·7	51·1	+2·6

Area.	Station.	Mean minimum temperature. Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
		°	°	°
First Area (*concld*)	Karwar	68·0	65·5	+2·5
	Nagpur	57·9	55·6	+2·3
	Seoni	53·4	51·3	+2·1
	Akola	55·5	53·4	+2·1
	Ahmednagar	52·8	50·7	+2·1
	Secunderabad	60·2	58·1	+2·1
Second Area	Bassein	64·9	61·7	+3·2
	Thayetmyo	56·1	53·5	+2·6

At most of the hill stations the mean night temperature exceeded the normal. This is shown below:—

Hill Station.	Mean minimum temperature. Actual, January, 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Cherat	43·5	37·9	+5·6
Simla	40·0	34·5	+5·5
Murree	39·4	35·2	+4·2
Chakrata	39·7	36·2	+3·5
Mussooree	40·5	37·6	+2·9
Chaman	37·3	34·7	+2·6
Ranikhet	42·0	40·0	+2·0
Leh	10·8	8·8	+2·0
Srinagar	23·2	26·4	−3·2
Mount Abu	54·5	51·2	+3·3
Pachmarhi	50·0	47·5	+2·5
Quetta	27·7	29·3	−1·6
Wellington	44·7	45·2	−0·5

The preceding data show that at Srinagar, Quetta and Wellington, the mean night temperature was below the normal, and at the remaining stations above it At Srinagar the deficiency was $3^{\circ}\cdot2$ so that at this station the mean diurnal range was $17\frac{1}{2}^{\circ}$ greater than usual.

The following gives the more noteworthy absolute minimum temperatures recorded during the month on the hills and plains of Northern India with the lowest temperatures previously recorded for comparison:—

Station.	Lowest minimum temperature recorded in January 1902.	Date on which recorded.	Lowest minimum temperature recorded in January previous to 1902.	Year in which recorded.
	°		°	
Dras	−29·4	5th	−35·5	1899
Minimarg	− 1·0	31st	− 7·0	1901
Kalat	0·2	30th	− 6·4	1897
Leh	2·5	5th, 6th, and 7th	−19·0	1899
Pishin	3·0	30th	2·4	1899
Astor	11·5	5th and 6th	2·0	1901
Rawalpindi	26·0	6th	24·9	1879
Khushab	27·4	6th	29·1	1892
Dera Ismail Khan	28·0	5th	26·0	1876
Peshawar	29·4	6th and 8th	28·8	1878 and 1880
Montgomery	30·5	6th	31·0	1900
Lahore	31·5	7th	29·2	1889
Umballa	32·0	4th	33·5	1898
Sialkot	34·1	3rd	31·6	1878
Roorkee	34·3	2nd	30·7	1869
Patiala	34·6	3rd	34·0	1898 and 1899

The mean temperature of the month was in slight defect over the south of the Peninsula and Ceylon, and locally at Cuttack, Balasore, Bhamo and Tavoy. Over the whole of the remainder of India the mean temperature was in excess. The excess was greatest over a large area which included Bombay, Rajputana, Central India, Berar, the adjacent parts of the North-Western Provinces and the Central Provinces. The following gives data for those stations at which the excess was $2\frac{1}{2}^{\circ}$ or more:—

Station.	Mean daily temperature. Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Khandwa	71·8	67·8	+4·0
Amraoti	75·1	71·2	+3·9
Surat	75·5	71·7	+3·8
Ahmedabad	73·9	70·5	+3·4
Akola	72·6	69·3	+3·3
Bijapur	74·8	71·6	+3·2
Deesa	70·4	67·3	+3·1
Nagpur	72·5	69·6	+2·9
Saugor	67·1	64·3	+2·8
Veraval	72·8	70·1	+2·7
Sholapur	75·5	72·9	+2·6
Indore	67·2	64·6	+2·6
Secunderabad	73·8	71·3	+2·5
Ahmednagar	69·9	67·4	+2·5
Kurrachee	68·2	65·7	+2·5
Mooltan	59·3	56·8	+2·5

The mean temperature was about 2°·0 in excess of the normal over the submontane regions of Northern India. This is shown below:—

Station.	Mean daily temperature. Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Rawalpindi	53·0	50·5	+2·5
Dehra Dun	58·0	55·5	+2·5
Jalpaiguri	63·8	61·4	+2·4
Peshawar	53·9	51·6	+2·3
Bahraich	61·9	59·8	+2·1

The mean temperature was in moderate to considerable excess at all the hill stations with the exception of Wellington. The following gives comparative data:—

Hill Station.	Mean daily temperature. Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Cherat	51·2	43·6	+7·6
Simla	45·4	39·5	+5·9
Murree	46·8	41·3	+5·5
Srinagar	38·2	32·7	+5·5
Chaman	49·1	44·1	+5·0
Chakrata	48·3	43·4	+4·9

Hill Station.	Mean daily temperature. Actual, January 1902.	Normal January.	Variation of actual from normal, January 1902.
	°	°	°
Quetta	43·6	40·3	+3·3
Mussooree	46·4	43·3	+3·1
Leh	22·1	19·3	+2·8
Ranikhet	49·3	47·2	+2·1
Mount Abu	62·1	58·9	+3·2
Pachmarhi	62·1	59·4	+2·7
Wellington	55·8	56·5	−0·7

The principal features of the temperature conditions of the month were hence as follows:—

(1) The mean day, the mean night and consequently the mean temperature were below the normal over the south of the Peninsula.

(2) The mean day temperature was in large excess, the mean night temperature in moderate to considerable defect and the mean temperature in moderate excess over North-West India.

(3) The mean day temperature, the mean night temperature and consequently the mean temperature were in excess over Bombay and the central parts of the country.

(4) The mean day, the mean night and consequently the mean temperature were generally in excess at the hill stations.

(5) The diurnal range of temperature was larger than usual over a large part of the country.

The following gives mean temperature data of the month for the 56 meteorological divisions of the empire:—

Province.	Division.	Actual temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of month of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	88·5	65·7	77·1	22·8	32·3	−0·1	+0·3	−0·4
	Lower Burma (Deltaic)	86·2	67·8	77·0	18·4	25·9	−0·1	+2·2	−2·3
	Central do.	84·4	57·0	70·7	27·4	35·3	+0·6	+2·6	−2·0
	Upper do.	81·4	54·6	68·0	26·8	36·1	−0·7	+1·1	−1·8
	Arakan	82·4	60·9	71·7	21·5	28·3	+1·0	+1·6	−0·6
Bengal and Assam	Eastern Bengal	78·6	55·0	66·8	23·6	32·9	+1·0	+0·6	+0·4
	Assam (Surma)	80·5	53·0	66·8	27·5	39·0	+2·7	+0·7	+2·0
	Do. (Brahmaputra)	72·4	50·8	61·7	21·6	29·9	+0·6	−0·6	+1·2
	Deltaic Bengal	79·1	54·9	67·0	24·2	38·0	+1·7	+0·4	+1·3
	Central do.	78·7	53·5	66·1	25·1	39·9	+1·7	+0·9	+0·8
	North do.	76·3	51·2	63·8	25·1	36·1	+2·7	+0·3	+2·4
	Bengal Hills	51·9	22·7	37·3	29·2	44·2	...	...	...
	Orissa	80·8	59·7	70·3	21·1	32·0	−0·5	+0·2	−0·7
	Chota Nagpur	78·0	52·2	65·1	25·8	42·9	+0·5	+1·2	−0·7
	Bihar (South)	77·0	52·4	64·7	24·7	42·0	+1·5	+0·5	+1·0
	Do. (North)	76·9	49·2	63·1	27·8	42·0	+3·3	−0·5	+3·8

Province.	Division.	Actual temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
North-Western Provinces and Oudh.	North-Western Provinces (East)	76·8	48·8	62·8	28·0	46·0	+2·4	+0·7	+1·7
	Oudh (South)	77·1	46·0	61·6	31·1	46·2	+3·1	—0·7	+3·8
	Do. (North)	75·6	48·1	61·9	27·5	38·1	+3·2	+1·0	+2·2
	North-Western Provinces (Central)	77·0	48·3	62·7	28·7	45·7	+3·0	+0·2	+2·8
	Do. do. (West)	75·7	46·8	61·3	28·9	46·7	+3·8	0	+3·8
	Do. do. (Submontane, East)	75·9	49·6	62·8	26·3	39·3	+3·0	+0·4	+2·6
	Do. do. (Submontane, West)	72·3	44·6	58·5	27·6	39·7	+3·3	+0·6	+2·7
	Do. do. (Hills)	55·1	39·9	47·5	15·2	30·6	+3·9	+2·8	+1·1
Punjab and North-West Frontier Province.	Punjab (South-East)	73·5	48·5	61·0	25·0	41·5	+2·8	+0·6	+2·2
	Do. (South)	74·1	42·0	58·0	32·1	49·3	+4·2	—1·1	+5·3
	Do. (Central)	73·0	39·0	56·0	34·0	50·5	+4·0	—1·7	+5·7
	Do. (Submontane)	72·0	41·7	56·9	30·3	46·3	+4·3	—1·0	+5·3
	Do. (Hills)	45·8	24·9	35·4	20·8	41·2	+8·1	+2·8	+5·3
	Do. (North)	70·1	36·7	53·5	33·4	49·8	+6·8	—2·1	+8·9
	Do. (West)	74·2	39·3	56·8	35·0	51·2	+5·4	—3·4	+8·8
Bombay and Malabar Coast Districts (Madras).	Malabar	87·5	71·1	79·3	16·4	25·5	+0·3	+0·6	—0·3
	Madras (South Central)	86·4	63·6	75·0	22·9	35·5	—1·2	—0·3	—0·9
	Coorg	76·7	56·7	65·8	20·0	28·9	—1·0	+0·1	—1·1
	Mysore	82·5	58·1	70·3	24·4	33·8	+0·6	+0·4	+0·2
	Konkan	86·2	70·2	78·2	16·0	24·1	+1·0	+2·5	—1·5
	Bombay Deccan	88·5	58·8	73·6	29·7	39·3	+2·9	+1·8	+1·1
	Hyderabad (North)	86·8	58·5	72·6	28·2	40·0	...	...	...
	Khandesh	88·2	53·8	71·1	34·4	45·4	+3·4	+2·5	+0·9
Central Provinces and Berar.	Berar	89·2	58·5	73·9	30·7	41·9	+4·3	+2·9	+1·4
	Central Provinces (West)	85·2	55·1	70·2	30·1	44·5	+4·1	+2·8	+1·3
	Do. (Central)	82·2	53·3	67·8	28·9	42·3	+2·4	+2·0	+0·4
	Do. (East)	84·1	55·5	69·8	28·6	39·7	+2·2	+0·4	+1·8
Bombay (North)	Gujarat	89·4	60·0	74·7	29·4	45·1	+4·0	+3·3	+0·7
	Kathiawar and Cutch	83·9	56·7	70·3	27·2	45·2	+3·0	+1·6	+1·4
	Sind	80·4	49·0	64·7	31·4	50·6	+4·7	—0·6	+5·3
	Baluchistan Hills	59·6	26·2	42·9	33·4	66·9	+7·8	+0·5	+7·3
Rajputana and Central India.	Central India (East)	79·1	49·9	64·5	29·2	46·6	+2·3	+1·6	+0·7
	Rajputana (East), Central India (West)	80·7	48·0	64·7	32·1	50·9	+4·7	0	+4·7
	Do. (West)	80·6	48·9	64·8	31·7	51·0	+5·2	—1·2	+6·4
Madras	East Coast (North)	81·2	64·9	73·1	16·4	25·2	0	+1·5	—1·5
	Hyderabad (South)	87·8	61·4	74·6	26·4	35·9	+2·0	+1·7	+0·3
	Madras (Central)	90·0	62·2	76·1	27·8	38·6	+1·7	+1·0	+0·7
	East Coast (Central)	84·9	66·5	75·7	18·5	28·0	+0·2	+0·6	—0·4
	Do. (South)	83·9	67·9	75·9	16·0	25·2	—0·6	+0·5	—1·1
	Madras (South)	85·6	71·0	78·3	14·6	24·9	—1·7	—0·8	—0·9

The hottest area as defined by the isotherm of 78° included Malabar, the Konkan and Madras South, while the coolest area defined by the isotherm of 52° included the North Punjab.

The diurnal range of temperature was everywhere in excess of the normal except in Burma, Orissa, Chota Nagpur, Malabar, Madras South-Central, Coorg, Konkan, Madras East Coast North, Madras East Coast Central, Madras East Coast South and Madras South.

The following gives a brief sketch of the more important changes of the temperature conditions of January 1902 in the Indian region :—

At the commencement of the month the temperature conditions were largely determined by the snowfall and rainfall of the last week of December. A cool wave had reduced temperature below the normal over Northern India, and, though this reduction of temperature was disappearing over the West Punjab, it still held over the remainder of Northern India and Upper Burma. The following gives data from the 1st to the 5th for Burma and

the different divisions of Northern India and illustrates the temperature conditions prevailing at this time over Northern India:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	1st January.	2nd January.	3rd January.	4th January.	5th January.
	°	°	°	°	°
Burma	−1·4	−0·2	−0·3	−0·7	−0·6
Assam	−0·5	−1·7	−1·9	−1·8	−2·7
Bengal	−0·5	−1·3	−1·5	−1·9	−1·6
Orissa	−2·0	−2·5	−3·9	−2·0	−0·1
Bihar	−1·1	−2·0	−3·0	−3·0	+0·1
Chota Nagpur	−1·4	−2·1	−2·2	−0·6	+2·0
N.-W. P. and Oudh	−1·2	−3·0	−3·0	−3·3	−1·8
Punjab	+0·3	−0·9	−2·0	−1·8	−3·1
Sind	−1·2	+0·3	−0·9	−2·4	−1·3
Rajputana	−2·1	−2·5	−2·2	−3·3	−4·9
Central India	−1·3	−0·8	+1·3	−0·7	−2·8

During these five days and until the 10th very low night temperatures were recorded on the plains of Northern India. The following gives actual and variation data of the night temperature from the 1st to the 10th for those stations at which the minimum temperatures were most largely below the normal:—

Date.	Station.	Minimum temperature.	
		Actual of date.	Variation of actual from normal of date.
		°	°
1st January	Hyderabad (Sind)	44·0	−6·8
	Bikaner	43·1	−6·5
2nd ,,	Umballa	33·0	−10·0
	Roorkee	34·3	−8·7
3rd ,,	Khushab	30·9	−9·6
	Umballa	33·5	−9·5
4th ,,	Umballa	32·0	−11·0
	Cawnpore	36·5	−10·1
5th ,,	D. I. Khan	28·0	−11·2
	Khushab	30·5	−10·1
6th ,,	Khushab	27·4	−13·3
	Rawalpindi	26·0	−10·8
7th ,,	Khushab	31·4	−9·3
	Montgomery	32·0	−9·3
8th ,,	D. I. Khan	28·5	−11·2
	Khushab	30·4	−10·4
9th January	Jacobabad	34·5	−8·4
	D. I. Khan	31·5	−8·3
10th ,,	Jacobabad	32·0	−11·0
	Khushab	30·4	−10·5

During these five days the mean temperature was in largish excess over the northern half of the Peninsula, more particularly in the Bombay Deccan and Berar. The following gives comparative data for the divisions in this region from the 1st to the 5th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	1st January.	2nd January	3rd January.	4th January.	5th January.
	°	°	°	°	°
Berar	+3·3	+4·5	+5·6	+5·0	+7·1
Central Provinces	+1·7	+0·3	+1·7	+3·6	+3·3
West Coast	+2·4	+1·6	+1·9	+1·9	+2·8
Bombay Deccan	+2·7	+2·7	+3·4	+3·8	+3·4

On the 4th a small barometric depression appeared over the area of greatest excess of temperature over Berar. This shallow depression drifted north-eastward and travelled to the neighbourhood of Allahabad. It occasioned showers over the East Gangetic Plain and the East Satpuras and gave cloudy weather to several central districts, but its effect on the temperature conditions was trifling and unimportant. On the 7th and 8th another slight depression passed from Gujarat into the West Gangetic Plain. The rainfall from this depression was somewhat heavier and more extensive than that of the former and a well marked, though slight, fall of temperature occurred over the more central districts. The following gives comparative data for the central divisions of the Indian area from the 4th to the 9th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	4th January.	5th January.	6th January.	7th January.	8th January.	9th January.
	°	°	°	°	°	°
Central India	−0·7	−2·8	−4·5	−1·3	+3·2	−1·0
Central Provinces	+3·6	+3·3	+0·8	+2·5	+3·7	+1·7
Berar	+5·0	+7·1	+5·5	+5·4	+6·6	+2·4

During the first eight days of the month daily showers, light to moderate in amount, had occurred over the south of the Peninsula and the mean temperature of South India was steadily below the normal during this period. This is shown below :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A. M. of							
	1st Jan.	2nd Jan.	3rd Jan.	4th Jan.	5th Jan.	6th Jan.	7th Jan.	8th Jan.
	°	°	°	°	°	°	°	°
South India . .	−0·1	+0·8	+0·2	−3·0	−0·7	−0·7	+0·2	−3·0

On the 9th the temperature rose over nearly the whole country and the mean temperature of the 24 hours preceding 8 A.M. of the 10th was in excess in all places except the extreme north-west. The following gives comparative data for all divisions for this day :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 10th January.	Mean minimum temperature, 10th January.	Mean daily temperature, 10th January.
	°	°	°
Burma	−0·2	+0·7	+0·3
Assam	+1·5	−0·5	+0·5
Bengal	+2·1	+2·5	+2·3
Orissa	+2·5	+2·3	+2·4
Bihar	+2·6	+4·0	+3·3
Chota Nagpur	+2·4	+4·5	+3·5
North-Western Provinces and Oudh .	+2·0	+3·4	+2·7
Punjab	+4·0	−4·8	−0·4
Sind	0	−6·6	−3·3
Rajputana	+2·4	+3·0	+2·7
Gujarat	+1·6	+5·6	+3·6
Central India	−1·3	+6·3	+2·5
Central Provinces	+1·9	+5·8	+3·9
Berar	+2·9	+8·9	+5·9
West Coast	+3·3	+4·8	+4·1
Bombay Deccan	+0·7	+7·2	+4·0
Mysore	−0·5	+0·8	+0·2
Madras Coast	+0·6	+1·5	+1·1
Madras Deccan	+0·3	+3·2	+1·8
South India	−1·5	+1·1	−0·2

On the 10th the temperature fell in Baluchistan and a cool wave appeared on the North-West Frontier. This wave extended to Rajputana by the 11th, to the west of the North-Western Provinces by the 12th, to West Bengal by the 13th, and to Orissa by the 14th and 15th. It disappeared on the 16th. The following table gives mean comparative temperature data for Baluchistan and the different divisions of Northern India from the 10th to the 16th and shows, though not very distinctly, the progress eastward of the cool wave :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	10th Jan.	11th Jan.	12th Jan.	13th Jan.	14th Jan.	15th Jan.	16th Jan.
	°	°	°	°	°	°	°
Baluchistan	+3·8	+6·0	+8·4	+15·2	+10·4	−3·0	−2·6
Sind	−3·3	−1·6	+0·1	+2·9	+3·4	+2·8	+1·3
Rajputana	+2·7	+1·0	−0·2	+0·2	+0·4	+2·1	+3·0
Punjab	−0·4	−1·6	−0·7	+0·6	−1·2	+1·1	+1·5
N.-W. Provinces and Oudh .	+2·7	+2·2	+0·5	+0·3	+1·0	+1·9	+2·3
Central India	+2·5	+3·5	+1·4	−1·8	−0·7	+2·8	+3·7
Chota Nagpur	+3·5	+1·9	+1·8	−0.5	−0·4	+0·7	+2·9
Bihar	+3·3	+1·7	+0·9	+1·8	+2·5	+2·2	+3·0
Orissa	+2·4	+1·5	+2·1	−0·1	−2·4	−2·3	−2·1
Bengal	+2·3	+1·4	+1·2	+1·5	+2·0	+2·2	+1·7

During these seven days the heat was more or less excessive over other parts of the country. The excess was greatest over Gujarat, Khandesh, Berar and the Bombay Deccan and was more than 5°·0 in amount at the stations for which comparative data are given below :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
10th January	Akola	+7·6
	Ahmedabad	+6·6
	Ratnagiri	+6·4
	Bombay	+5·8
	Veraval	+5·5
	Ahmednagar	+5·4
11th „	Ahmedabad	+7·3
	Akola	+6·8
	Malegaon	+6·1
	Poona	+6·1
	Veraval	+6·0
	Amraoti	+5·8
	Surat	+5·3
12th „	Bijapur	+6·7
	Surat	+5·8
	Akola	+5·2
	Sholapur	+5·1

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
13th January	Surat	+6·1
	Ahmednagar	+6·1
	Sholapur	+5·8
	Bijapur	+5·2
14th „	Surat	+5·5
	Ahmednagar	+5·5
15th „	Bhuj	+5·5
16th „	Veraval	+5·4

On the 17th a small area of relatively low temperature appeared over Kathiawar and this area extended eastward until it spread right across the head of the Peninsula as far as Bengal. A noteworthy feature of this area was the lowness of the night temperatures, more especially as the day or maximum temperatures were generally in excess. These temperature conditions lasted from the 18th to the 23rd during which period very excessive temperatures prevailed over North-West India, slightly excessive temperatures over the southern half of the Peninsula and deficient temperatures within a broad band running from the Konkan coast to Bengal. The following gives comparative data for all divisions for the 20th as representative of the temperature conditions at this time :—

Province or Division.	Variation from normal of Mean maximum temperature, 20th January.	Mean minimum temperature, 20th January.	Mean daily temperature, 20th January.
	°	°	°
Burma	—1·9	+1·3	—0·3
Assam	0	—2·9	—1·5
Bengal	—0·3	—3·0	—1·7
Orissa	—2·1	—1·5	—1·8
Bihar	+0·9	—2·3	—0·7
Chota Nagpur	—2·6	—2·6	—2·6
North-Western Provinces and Oudh	+2·8	—1·1	+0·9
Punjab	+9·3	+2·4	+5·9
Sind	+13·4	+10·1	+11·8
Rajputana	+10·0	+2·3	+6·2
Gujarat	+5·1	+0·8	+3·0
Central India	+4·3	—1·1	+1·6
Central Provinces	+0·8	—3·5	—1·4
Berar	+2·2	—2·6	—0·2
West Coast	—1·1	0	—0·6
Bombay Deccan	+2·6	—2·8	—0·1
Mysore	+2·0	—0·4	+0·8
Madras Coast	+0·3	+0·6	+0·5
Madras Deccan	+3·3	+1·0	+2·3
South India	+2·0	—2·7	—0·4

As stated above, the temperature was very high during this period over North-West India, and between the 20th and 23rd the mean temperature was more than 8° in excess of the normal at the following large number of stations :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
20th January	Hyderabad (s)	+13·0
	Jacobabad	+12·8
	Kurrachee	+10·0
	Bikaner	+9·2
	Montgomery	+8·4
	Khushab	+8·2
21st „	Bikaner	+12·2
	Jacobabad	+10·8
	Kurrachee	+10·4
	Sambhar	+10·2
	Montgomery	+9·6
	Ajmer	+9·5
	Bhuj	+9·0
	Rajkot	+8·9
	Jaipur	+8·6
	Deesa	+8·5
	Sirsa	+8·4
22nd „	Bikaner	+13·2
	Ajmer	+13·2
	Sambhar	+11·4
	Neemuch	+10·7
	Jaipur	+10·3
	Rajkot	+9·9
	Sirsa	+9·5
	Lahore	+9·2
	Mooltan	+9·2
	Deesa	+9·2
	Jacobabad	+8·8
	Hyderabad (s)	+8·4
	Montgomery	+8·3
23rd „	Ajmer	+11·5
	Neemuch	+10·9
	Saugor	+9·6
	Sambhar	+9·4
	Bikaner	+9·4
	Jaipur	+9·3
	Jhansi	+8·9
	Khandwa	+8·5
	Surat	+8·5

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
23rd January	Bhuj	+ 8·4
	Mooltan	+ 8·4
	Jacobabad	+ 8·3
	Agra	+ 8·1

On the 24th the band of relatively low temperature across the central parts of the country disappeared, and from the 24th to the 29th the mean temperature was steadily in excess all over Northern and Central India. The following gives comparative data for the divisions in this region from the 24th to the 29th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	24th Jan.	25th Jan.	26th Jan.	27th Jan.	28th Jan.	29th Jan.
	°	°	°	°	°	°
Sind	+6·4	+7·0	+7·0	+6·0	+8·9	+3·3
Gujarat	+4·9	+5·2	+6·7	+7·6	+7·2	+5·3
Rajputana	+6·1	+5·9	+7·8	+7·9	+10·0	+8·1
Punjab	+5·2	+5·5	+6·9	+6·9	+7·3	+8·7
North-Western Provinces and Oudh	+4·3	+3·7	+3·3	+3·0	+4·2	+7·1
Central India	+4·5	+4·6	+4·0	+4·1	+5·9	+7·8
Central Provinces	+4·7	+4·7	+2·0	+1·3	+2·5	+4·0
Berar	+3·9	+4·1	+4·0	+2·7	+2·5	+2·0
Chota Nagpur	+3·0	+5·1	+1·4	+0·8	+1·4	+2·4
Bihar	+4·1	+5·2	+3·5	+3·2	+3·1	+3·8
Orissa	+1·0	+2·2	+1·2	+0·6	−0·5	+0·3
Bengal	+2·0	+3·0	+3·3	+2·5	+2·1	+3·1
Assam	+1·4	+0·9	+0·5	+1·6	+1·9	+2·4

On the 25th a fall of temperature occurred over the south of the Peninsula reducing the mean temperature below the normal. This area of relatively low temperature gradually extended and by the 28th had reached to most parts of the Peninsula. The following gives comparative data of the Peninsular divisions from the 24th to the 29th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	24th January.	25th January.	26th January	27th January.	28th January.	29th January.
	°	°	°	°	°	°
West Coast	−0·5	−0·4	+0·5	+0·6	+0·2	−0·3
Bombay Deccan	+2·2	+2·5	+1·8	+1·3	+0·6	+1·8
Mysore	+1·0	0	−1·6	−2·4	−1·4	+0·2
Madras Coast	+0·5	−0·1	−0·8	+0·2	−0·4	−0·9
Madras Deccan	+1·7	+1·4	+0·4	−1·2	−0·8	+0·6
South India	+0·4	−3·5	−2·4	−0·6	−0·8	−1·2

The chart of the 29th showed that cool north-westerly winds had set in along the North-West Frontier, due to snowfall on the neighbouring hills, and on the 30th a rapid fall of temperature occurred in the north-west which reduced temperature in that region considerably below the normal and at the same time transferred the area of greatest excess of temperature to North East India. The following gives comparative temperature data for Baluchistan and for all the divisions of Northern and Central India from the 29th to the 31st. It shows the rapidity and extent of the change which occurred at this time :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	29th January.	30th January.	31st January.
	°	°	°
Baluchistan	−13·9	−14·9	−11·0
Sind	+3·3	−5·5	−5·5
Gujarat	+5·3	−0·6	−3·3
Rajputana	+8·1	−0·9	−6·8
Punjab	+8·7	−0·2	−3·1
North-Western Provinces and Oudh.	+7·1	+7·6	+1·3
Central Provinces	+4·0	+3·9	+1·8
Central India	+7·8	+7·6	+0·4
Berar	+2·0	+4·2	+1·5
Chota Nagpur	+2·4	+6·7	+7·1
Bihar	+3·8	+5·5	+7·2
Orissa	+0·3	+2·6	+3·0
Bengal	+3·1	+5·1	+6·0
Assam	+2·4	+2·8	+2·7

Over the Peninsular divisions, except the Madras Deccan, the mean temperature remained steadily below the normal. This is shown below :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	29th January.	30th January.	31st January.
	°	°	°
West Coast	−0·3	0	−1·1
Bombay Deccan	+1·8	+0·7	−0·7
Mysore	+0·2	−0·8	−0·6
Madras Coast	−0·9	−0·6	−1·5
Madras Deccan	+0·6	+0·9	+0·5
South India	−1·2	−3·2	−2·9

The following gives mean temperature data for the stations in the countries lying to the west of India :—

Station.	Mean daily temperature.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Quetta	43·6	40·3	+3·3
Chaman	49·1	44·1	+5·0
Kabul	42·6	31·4	+11·2
Jask	69·6	66·8	+2·8
Bushire	59·7	57·9	+1·8
Ispahan	40·3	34·8	+5·5
Teheran	40·4	34·3	+6·1
Baghdad	49·5	49·2	+0·3
Muscat	70·9	69·7	+1·2

The preceding data show that over Afghanistan, Persia and Turkish Arabia the general temperature conditions were similar to the temperature conditions prevailing over North-West India. The mean day or maximum temperature was generally above, and the mean night or minimum temperature below, the normal. Cold periods were experienced at the beginning of the month when the minimum temperature fell to 7°·1 at Kabul and again at the end of the month when the temperature fell very rapidly at Kabul and Bushire.

At Perim, Aden and Zanzibar the mean temperature of the month was practically normal while at the Seychelles it was in slight defect.

Station.	Mean daily temperature.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	°	°	°
Perim	77·5	77·4	+0·1
Aden	76·0	76·7	−0·7
Zanzibar	82·7	82·4	+0·3
Seychelles	77·9	79·7	−1·8

Winds.

The 8 A.M. wind data, consisting of observations of the direction of the wind and of the air movement as registered by Robinson anemometers, are given in Table I, under the headings "Wind direction" and "Wind velocity." In these columns are shown the number of days the wind at 8 A.M. blew from each of eight points, the resultant direction of winds and also the mean hourly air movement. The wind resultant is calculated in all cases by the use of Lambert's formula, in which equal values are given to each wind observation. The mean wind directions are shown in Plate I by means of arrows in the usual manner.

The wind data for 10 and 16 hours are given in a similar form in Table II. Under the headings "Wind direction," "Wind steadiness" and "Wind velocity" are shown the number of times that each of eight wind directions was observed at the hours of record, the trigonometrical resultant of these observations computed by Lambert's formula, the mean diurnal movement of the air at each station and the average monthly values of the last two elements computed from the previous wind observation at that station.

The mean wind directions of the month for the second class stations are indicated in the small chart No. 4 of Plate III by means of arrows flying with the wind. In this chart the lengths of the arrows are drawn so as to indicate the comparative wind prevalence in the mean direction on a scale such that five-eighths of an inch would represent a wind blowing continuously throughout the month from the mean direction.

The following gives a statement of the chief features of the air movement of the month based on a comparison of the mean wind direction and intensity (determined from the 10 and 16 hours' wind observations) and the corresponding normal values of these elements for the month.

The wind was nearly northerly in direction over Burma, but was lighter than usual in force. The following gives data :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, January 1902.	Normal, January.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
Diamond Island	N 8°W	N 1°W	118	176	−58
Akyab	N 7 W	N 19 W	64	67	− 3

At Chittagong, as on the Arakan Coast, the wind was more northerly than the average, while the steadiness was about the average and the velocity was less than usual. The following gives comparative data for this station :—

Station.	Mean steadiness.			Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Northerly deflection.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
				°	°	°			
Chittagong	48	47	+ 1	N 4 W	N 26 W	+ 22	67	75	−8

In Deltaic Bengal, on the contrary, the wind was abnormally westerly and was steadier and stronger than usual. The following gives data for Saugor Island and Calcutta in illustration :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual normal, January 1902.	Actual, January 1902.	Normal, January.	Westerly deflection.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
				°	°	°			
Saugor Island.	32	20	+12	N 28 W	N 6 W	+22	185	166	+19
Calcutta .	46	39	+ 7	N 47 W	N 36 W	+11	75	62	+13

In Orissa the wind was about normal. This is shown below :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
				°	°			
False Point . .	24	22	+2	N 54 E	N 57 E	125	147	—22

In the Gangetic Plain the wind was lighter than usual, but the direction was about the average except at Darbhanga where there was a slight northerly component instead of the usual slight southerly component. The following gives direction and velocity data for the stations in this area :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
				°	°			
Hazaribagh. .	42	49	— 7	N 46 W	N 53 W	108	135	—27
Darbhanga . .	24	46	—22	N 85 W	S 80 W	28	63	—35
Allahabad . .	26	25	+ 1	N 25 W	N 40 W	72	81	— 9

In the Upper Sub-Himalayas the principal feature in the winds was the increased westing in the direction. This is shown below :—

STATION.	MEAN WIND DIRECTION.		
	Actual, January 1902.	Normal, January.	Westerly Deflection.
	°	°	
Dehra Dun	S 79 W	S 69 W	+10
Meerut	N 87 W	N 56 W	+31
Lahore	N 89 W	N 27 W	+62
Ludhiana	N 85 W	N 54 W	+31

At Roorkee the wind was exceedingly variable and about half the usual force. The following gives comparative data :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
				°	°			
Roorkee . .	2	19	—17	N 59 E	N 76 W	27	51	—24

At the remaining stations in this division the steadiness of the wind was generally greater than usual, but the velocity was low. This is shown below :—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
Dehra Dun . .	26	18	+ 8	6	40	—34
Meerut . . .	43	42	+ 1	26	49	—23
Lahore . . .	34	20	+14	30	43	—13
Ludhiana . .	68	29	+39	39	35	+ 4

In the Upper Indus Valley the wind blew from between north-north-west and north-west and was steadier than usual, while at Kurrachee there was an abnormal west-south-west wind instead of the usual north-east wind and

the force was low. The following gives comparative data for the stations in this area :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	January Actual, 1902.	Normal, January.	January Actual, 1902.	Normal, January.	Variation of actual from normal, January 1902.
				°	°			
Peshawar . .	16	5	+11	N 14 W	S 8 W	36	64	−28
Jacobabad . .	30	24	+ 6	N 36 W	N 4 W	67	51	+16
Kurrachee . .	22	23	− 1	S 80 W	N 23 E	151	239	−88

In Eastern Rajputana the wind, as in the Upper Sub-Himalayas, was north-westerly, exhibiting an unusual amount of westing, while in South Rajputana the direction was about northerly. The steadiness was great, but the velocity low. The following gives data :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	January Actual, 1902.	Normal, January.	January Actual, 1902.	Normal, January.	Variation of actual from normal, January 1902.
				°	°			
Jaipur . . .	34	18	+16	N 41 W	N 8 E	63	83	−20
Deesa . . .	40	38	+ 2	N 6 E	N 20 E	155	208	−53

The following gives comparative data of the mean wind steadiness and velocity for the Bay Islands, Burma and the different divisions of Northern India :—

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
Bay Islands .	67	81	−14	111	277	−166
Burma . .	52	57	− 5	91	122	−31
Bengal . .	42	35	+ 7	109	101	+ 8
Bihar . .	24	46	−22	28	63	−35
Chota Nagpur.	42	49	− 7	108	135	−27
Orissa . .	24	22	+ 2	125	147	−22
North-Western Provinces.	24	26	− 2	33	55	−22
Punjab . .	39	18	+21	35	47	−12
Sind . .	26	24	+ 2	109	145	−36
Rajputana .	37	8	+9	109	146	−37

The principal feature of the winds was the increased westing in the winds over Northern India from the Gangetic Plain eastward to Lower Bengal. This increased westing was combined with more than the usual steadiness but with a low velocity.

At most of the stations in the Deccan the air movement, on the mean of the month, was more easterly than the average. The exceptions were Akola where the wind was north-north-east instead of north-east and Buldana where the wind direction was north-by-west instead of east-north-east. The following gives direction data for five stations in this division :—

Station.	Mean wind direction.		
	Actual, January 1902.	Normal, January.	Easterly deflection.
	°	°	°
Belgaum	S 88 E	S 75 E	+13
Sholapur	S 71 E	S 59 E	+12
Khandwa	N 72 E	N 21 E	+51
Nagpur	E	N 71 E	+19
Hyderabad (Deccan) . . .	S 64 E	S 51 E	+13

The steadiness varied irregularly from the normal and was very low in some places. The following gives comparative data of steadiness and velocity :—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, Jan. 1902.	Normal, percentage, Jan.	Variation of actual from normal, Jan. 1902.	Actual, Jan. 1902.	Normal, Jan.	Variation of actual from normal, Jan. 1902.
Belgaum . . .	51	43	+ 8	231	249	−18
Sholapur . . .	41	55	−14	264	184	+80
Akola . . .	14	28	−14	96	88	+ 8
Buldana . . .	2	13	−11	133	132	+ 1
Khandwa . . .	8	21	−13	103	74	+29
Nagpur . . .	20	30	−10	63	93	−30
Hyderabad (Deccan) .	34	60	−26	74	90	−16

At the West Coast stations the wind was more westerly than usual. This is shown below :—

Station.	Mean wind direction.		
	Actual, January 1902.	Normal, January.	Westerly deflection.
	°	°	°
Bombay	N 3 W	N 6 E	+ 9
Karwar	N 29 W	N 19 W	+10

The steadiness was about normal at the West Coast stations while the velocity was less than usual at Bombay and more than usual at Karwar. This is shown below:—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage Jan. 1902.	Normal percentage, Jan.	Variation of actual from normal, Jan. 1902.	Actual, Jan. 1902.	Normal, Jan.	Variation of actual from normal, Jan. 1902.
Bombay	53	58	−5	214	239	−25
Karwar	54	53	+1	84	73	+11

In South India the mean wind direction was about normal except Mysore, where the slight northerly component in the general easterly direction was replaced by a slight southerly component. The following gives comparative direction data:—

Station.	Mean wind direction.	
	Actual, January 1902.	Normal, January.
	°	°
Salem	N 87 E	N 82 E
Chitaldroog	N 84 E	S 88 E
Bangalore	N 83 E	N 88 E
Hassan	N 86 E	N 87 E
Mysore	S 86 E	N 82 E
Madras	N 67 E	N 49 E

The steadiness was generally greater than usual while the velocity was generally less than the average. This is shown below:—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, Jan. 1902.	Normal percentage, Jan.	Variation of actual from normal, Jan. 1902.	Actual, Jan. 1902.	Normal, Jan.	Variation of actual from normal, Jan. 1902.
Salem	69	62	+7	71	117	−46
Chitaldroog	76	77	−1	156	175	−19
Bangalore	82	79	+3	197	111	+86
Hassan	82	74	+8	70	75	−5
Mysore	76	83	−7	217	218	−1
Madras	82	78	+4	131	141	−10

The following gives mean comparative data of the air movement over the Peninsular divisions:—

Province or Division	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
Central Provinces	14	26	−12	83	84	−1
Berar	8	21	−13	115	110	+5
Bombay Deccan	46	49	−3	248	216	+32
Madras Deccan	34	60	−26	74	90	−16
West Coast	54	56	−2	149	156	−7
Madras Coast	82	78	+4	131	141	−10
Mysore	79	78	+1	160	145	+15
South India	69	62	+7	71	117	−46

At Quetta the wind was more southerly than usual, a characteristic which this station shared with Kurrachee. The wind was steadier than usual while the velocity was below the normal. The following gives data:—

Hill Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
				°	°			
Quetta	32	25	+7	S 85 W	N 85 W	47	74	−27

At the hill stations in the Himalayas the winds varied irregularly from the normal, the principal abnormal feature being increased southing at several stations. The following gives comparative direction data:—

Hill Station.	Mean wind direction.	
	Actual, January 1902.	Normal, January.
	°	°
Leh	S 10 W	S 10 W
Srinagar	N 61 W	S 37 E
Simla	S 5 E	S 7 E
Chakrata	S 14 E	S 84 W
Ranikhet	N 72 W	S 51 W
Katmandu	S 78 W	N 76 W
Darjeeling	S 10 E	S 89 W

The wind was generally steadier than usual, in some cases remarkably so, while the velocity was on the whole greater than the average. This is shown below:—

Hill Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, Jan. 1902.	Normal percentage, Jan.	Variation of actual from normal, Jan. 1902.	Actual, Jan. 1902.	Normal, Jan.	Variation of actual from normal, Jan. 1902.
Leh	82	29	+53	43	22	+21
Srinagar	11	10	+ 1	82	71	+11
Simla	24	31	− 7	156	128	+28
Chakrata	62	5	+57	173	123	+50
Ranikhet	18	15	+ 3	56	44	+12
Katmandu	53	49	+ 4	10	21	−11
Darjeeling	24	22	+ 2	60	88	−28

At the central hill stations the variations from the normal were irregular. The steadiness was greater than usual and the velocity was about normal. At Wellington the wind, as on the plains, was more easterly than the average. The steadiness was, however, low and the velocity above the average. The following gives data:—

Hill Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
				°	°			
Mount Abu	19	11	+ 8	S 78 W	N 69 W	123	119	+ 4
Pachmarhi	26	10	+16	N 55 W	N 79 W	75	78	− 3
Chikalda	32	24	+ 8	N 4 W	S 40 W	?	123	?
Wellington	48	65	−17	S 74 E	S 27 E	69	52	+17

In the South-East Trades region the wind direction was approximately normal while both the steadiness and velocity were in excess of the average. This is shown below:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, January 1902.	Normal percentage, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
				°	°			
Zanzibar	81	69	+12	N 35 E	N 35 E	211	196	+15
Seychelles	77	66	+11	N 34 W	N 43 W	179	144	+35

Humidity and Cloud.

The hygrometric data of the month employed in the following paragraphs are given in Table II. In that table are columns giving the means of the wet bulb readings at 10 and 16 hours and of the minimum wet bulb readings, the mean vapour tension and humidity at the same hours, and also the daily means of these elements. The hygrometric data are taken from the tables accompanying "*The Indian Meteorologist's Vade Mecum*," which were computed by means of Regnault's modification of August's formula. The normal values, by means of which the variations have been derived, are the means calculated in the same way for periods varying from 3 to 50 years.

The proportion of cloud is estimated in tenths of the sky expanse, an overcast sky being denoted by 10 and a cloudless sky by 0. The daily means are the arithmetical means of the cloud amount at 10 and 16 hours, and the normal means, with which the actual daily means of the month are compared, are the mean for periods varying from 3 to 50 years of the available cloud data for the same hours.

One of the most marked meteorological features of the month was the general dryness of the air over the Indian region. There were four small areas within which the relative humidity was in excess. The following gives comparative data for the stations within these areas:—

Area.	Station.	Relative Humidity.		
		Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
		%	%	
First area	Chitaldroog	50	46	+4
Second area	Salem	70	65	+5
	Madras	79	75	+4
Third area	Chittagong	77	73	+4
Fourth area	Rangoon	65	64	+1

Over the whole of the remainder of India the relative humidity was in defect. The amount of the deficiency increased from the south towards the north and was

greatest on the plains at the submontane stations of the Punjab and on the hills at the high level station of Leh. The following gives comparative data for these stations:—

STATION.	RELATIVE HUMIDITY.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	%	%	
Leh	36	67	−31
Ludhiana	51	69	−18
Peshawar	45	62	−17
Lahore	51	63	−12

The aqueous vapour in the air was in excess both at Rangoon and Diamond Island but at the latter station, owing to the high temperature, the relative humidit was in defect. The following gives data for these two stations:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Rangoon	·561	·551	+·010	65	64	+1
Diamond Island	·649	·630	+·019	67	70	−3

In Bengal the relative humidity was generally in defect but at Chittagong the absolute humidity was in considerable excess so that notwithstanding the higher temperature than usual the relative humidity was also in excess of the average. At the remaining stations in Deltaic Bengal the variations in the vapour pressure were small, but the temperature was high and the relative humidity was below the average. This is shown below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Chittagong	·522	·467	+·055	77	73	+4
Calcutta	·416	·402	+·014	63	69	−6
Saugor Island	·512	·519	−·007	72	75	−3
False Point	·542	·537	+·005	75	78	−3

In the Gangetic Plain similar conditions prevailed. The absolute humidity was approximately normal but the temperature was high and the relative humidity in considerable defect. The following gives data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Hazaribagh	·274	·268	+·006	48	51	−3
Darbhanga	·380	·396	−·016	66	71	−5
Allahabad	·333	·339	−·006	61	66	−5

In Upper India the vapour present in the air was everywhere less than usual, while the mean temperature was much above the normal so that the relative humidity was largely below the average. The following gives comparative data for these stations:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Dehra Dun	·241	·274	−·033	54	67	−13
Roorkee	·255	·289	−·034	59	66	−7
Meerut	·239	·290	−·051	53	65	−12
Lahore	·212	·272	−·060	51	63	−12
Ludhiana	·220	·289	−·069	51	69	−18

At the Upper Indus Valley stations both the absolute and relative humidities were in defect but at Kurrachee the absolute humidity was in excess though, owing to the high temperature prevailing, the relative humidity was in trifling defect. This is shown below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Peshawar	·174	·225	−·051	45	62	−17
Jacobabad	·188	·229	−·041	40	49	−9
Kurrachee	·392	·351	+·041	55	56	−1

In Rajputana the absolute humidity was in defect, the mean temperature considerably above the normal and the relative humidity in large defect. The following gives data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Jaipur	·226	·274	—·048	39	53	—14
Deesa	·205	·252	—·047	28	37	— 9

The following gives mean comparative data for the Bay Islands and the various divisions of Northern India:—

PROVINCE OR DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Bay Islands . . .	·708	·725	—·017	70	74	— 4
Burma	·605	·590	+·015	66	67	— 1
Bengal . . .	·483	·462	+·021	71	73	— 2
Bihar	·380	·396	—·016	66	71	— 5
Orissa	·542	·537	+·005	75	78	— 3
Chota Nagpur . .	·274	·268	+·006	48	51	— 3
North-Western Provinces.	·267	·298	—·031	57	66	— 9
Punjab . . .	·202	·262	—·060	49	65	—16
Sind	·290	·290	0	48	53	— 5
Rajputana . . .	·216	·264	—·048	34	46	—12

At all the stations in the Deccan, with the exception of Khandwa, the amount of vapour in the air was less than usual, while the mean temperature of the month was in large excess, so that the relative humidity over this region was generally in moderate to considerable defect. This is shown below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Belgaum . . .	·334	·345	—·011	47	47	0
Sholapur . . .	·321	·350	—·029	37	44	— 7
Akola	·304	·329	—·025	41	48	— 7
Buldana . . .	·262	·310	—·048	35	44	— 9
Khandwa . . .	·351	·325	+·026	47	49	— 2
Nagpur . . .	·338	·359	—·021	45	52	— 7

The air contained more aqueous vapour than usual along the West Coast, but the mean temperature was in excess and the relative humidity was hence in slight defect. The following gives data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Bombay . . .	·602	·577	+·025	67	69	—2
Karwar . . .	·622	·590	+·032	67	69	—2

In South India the humidity variations were irregular. At Salem, Chitaldroog and Madras both the absolute and relative humidities were more or less in excess, while at the remaining stations they were more or less in defect. This is shown below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Salem . . .	·613	·564	+·049	70	65	+ 5
Chitaldroog . .	·395	·354	+·041	50	46	+ 4
Bangalore . . .	·384	·405	—·021	58	61	— 3
Hassan . . .	·360	·385	—·025	56	57	— 1
Mysore . . .	·408	·447	—·039	57	60	— 3
Madras . . .	·696	·654	+·042	79	75	+ 4

The following gives mean comparative data for the Peninsular divisions :—

Province or Division.	Absolute humidity.			Relative humidity.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Central Provinces .	·345	·342	+·003	46	51	— 5
Berar	·283	·320	—·037	40	48	— 8
West Coast . . .	·612	·583	+·029	67	69	— 2
Bombay Deccan . .	·328	·348	—·020	42	46	— 4
Madras Coast . .	·696	·654	+·042	79	75	+ 4
Mysore . . .	·387	·398	—·011	55	56	— 1
South India . . .	·613	·564	+·049	70	65	+ 5

The increased dryness of the air was as marked at the hill stations in Northern India and Baluchistan as at the submontane stations, and at Leh in Ladakh the deficiency in the humidity was remarkably large. At Srinagar the conditions are peculiar and local and at that station both the absolute and relative humidities were in excess. The following gives data for Quetta and the northern hill stations :—

Hill Station.	Absolute humidity.			Relative humidity.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Quetta . . .	·141	·158	—·017	56	67	—11
Leh . . .	·036	·072	—·036	36	67	—31
Srinagar . .	·210	·154	+·056	85	82	+ 3
Simla . . .	·114	·147	—·033	39	58	—19
Chakrata . .	·143	·156	—·013	46	62	—16
Ranikhet . .	·198	·193	+·005	59	63	— 4
Katmandu . .	·225	·249	—·024	63	73	—10

At the central and southern hill stations the air was drier than usual, the mean temperature was in large excess and the relative humidity in large defect. This is shown below :—

Hill Station.	Absolute humidity.			Relative humidity.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Mount Abu . . .	·180	·207	—·027	32	43	—11
Pachmarhi . . .	·268	·284	—·016	49	55	— 6
Chikalda . . .	·274	·309	—·035	42	52	—10

At Aden the air was drier than usual. In the South-East Trades region the variations in the relative humidity were slight and irregular, though at both stations the absolute humidity was in slight defect. The following gives data for the South-East Trades region :—

Station.	Absolute humidity.			Relative humidity.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
	"	"	"	%	%	
Zanzibar . . .	·813	·850	—·037	73	77	— 4
Seychelles . . .	·809	·820	—·011	83	80	+ 3

The variations of the mean cloud amounts of the month agreed to a certain extent with the variations of the mean humidity from the normal. There was a small area of excess over Deltaic Burma—greatest at Rangoon—agreeing with the local area of humidity excess over Rangoon. The following gives comparative data for the stations in this area of increased cloud :—

Station.	Mean cloud amount.		
	Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
Rangoon	4·2	2·0	+2·2
Diamond Island	3·1	2·3	+0·8

Cloud, on the mean of the month, was also locally in excess at Salem where, it will be remembered, humidity

was also above the normal. The following gives comparative data for this station :—

Station.	Mean cloud amount. Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
Salem	3·3	2·8	+0·5

Cloud was in slight local excess at Khandwa. This is shown below :—

Station.	Mean cloud amount. Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
Khandwa	1·7	1·5	+0·2

The amount of cloud was, on the mean of the month, exactly normal at the stations for which comparative data are given below :—

Station.	Mean cloud amount. Actual, January 1902.	Normal January.	Variation of actual from normal, January 1902.
False Point	2·0	2·0	0
Allahabad	2·1	2·1	0
Sholapur	1·8	1·8	0
Hyderabad (Deccan)	1·6	1·6	0

Over the whole of the remainder of India the cloud amount, on the mean of the month, was more or less in defect. The deficiency was generally slight over the Peninsula, the central parts of the country and Bengal, but was considerable to large over the North-West Dry area, the sub-montane districts along the foot of the Himalayas and the Himalayas. The following gives comparative data for those stations at which the deficiency was more than 1·5 and which define the area of greatest defect.

Station.	Mean cloud amount. Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
Srinagar	3·3	7·9	−4·6
Simla	2·5	5·6	−3·1
Ludhiana	1·5	4·4	−2·9
Dehra Dun	1·4	4·2	−2·8
Peshawar	2·3	4·8	−2·5
Roorkee	1·0	3·4	−2·4
Chakrata	2·4	4·6	−2·2
Meerut	1·2	3·2	−2·0
Ranikhet	2·2	4·1	−1·9
Kurrachee	0·7	2·6	−1·9
Leh	4·8	6·6	−1·8
Quetta	2·4	4·1	−1·7

It will be observed that the greatest serenity was reported from Srinagar where the relative humidity was in excess of the normal, while at Leh, where the humidity was very largely in defect of the normal, the deficiency in the cloud amount was only slight.

The sky was practically clear, or the cloud amount, on the mean of the month, was less than 1·0 at the following stations :—

Station.	Mean cloud amount. Actual, January 1902.
Darbhanga	0·9
Deesa	0·9
Kurrachee	0·7
Calcutta	0·6
Bombay	0·5
Karwar	0·4
Chittagong	0·3
Akyab	0·1

The cloud amount was 5·0 or more, on the mean of the month, in the South-East Trades region only. The following gives data for the stations in this area :—

Station.	Mean cloud amount. Actual, January 1902.	Normal, January.	Variation of actual from normal, January 1902.
Seychelles	7·0	7·0	0
Zanzibar	5·4	4·4	+1·0

Rainfall.

Rainfall observations are made at upwards of 2,000 stations in India. The hour of observation is 8 A.M. The rainfall data for each province are tabulated in the office of the Meteorological Reporter, Director of Land Records, or other office in the province, and published in the provincial gazettes.

The charts illustrating the distribution of rainfall in the month under discussion are based in part upon the rainfall data of the meteorological observatories throughout India, and in part upon the rainfall statements of the month published by the Local Governments.

The first rainfall chart (Plate IV) shows the actual distribution of the rainfall of the month so far as it is indicated by the returns of upwards of 220 meteorological stations. The distribution of rainfall is shown on this chart by means of isohyetic lines or lines of equal amounts of rainfall, the numbers attached to each line stating the rainfall in inches. The second chart (Plate V) shows the normal average rainfall and the variation of the rainfall from the normal of the month of the 57 meteorological or rainfall divisions, over each of which the meteorological conditions (more especially the rainfall) are fairly uniform and the staple crops similar in character.

Northern India usually receives light to moderate rain in the month of January from cold weather cyclonic storms. The precipitation is generally heaviest in the hill districts and decreases in amount southwards from the foot of these hills. Rain is also occasionally received in the South Madras coast districts, usually under the same conditions as in December. This rainfall is, however, exceptional in occurrence.

The month under review was much finer and less disturbed than usual in Northern India and the precipitation of the month was scanty and more or less in serious defect over the greater part of that area.

In Southern India, on the other hand, weather was very disturbed from the 3rd to the 8th due to a strong determination of north-east winds from the Bay across that area and moderately heavy rain fell in that area to the south of Lat. 12° N. during the period. The rainfall was on the whole heaviest in South Madras, where was unusually large for the season.

The chief periods of rainfall in Northern and Central India were as follows:—

(1) From the 4th to the 7th, when the south-eastern districts of the North-Western Provinces, South Bihar, Chota Nagpur and the Central Provinces (excepting the eastern districts) obtained light to moderate thunder showers from the first disturbance of the month.

(2) From the 8th to the 11th, during which period the second disturbance of the month occasioned numerous thunder showers in the central and western districts of the Central Provinces, Gujarat, Khandesh, Oudh, the central and south-eastern districts of the North-Western Provinces and Central India East and some local showers in West Rajputana.

(3) 13th and 14th, when some local showers occurred in Baluchistan.

(4) From the 29th to the 31st, when the hill districts of the Punjab on the one hand and the Assam Valley on the other were visited by a series of thunder storms giving fairly general showers.

The following were the principal features of the rainfall distribution of the month:—

(1) Practically or actually no rain fell in East, Central and North Bengal, North Bihar, North Oudh, the western, submontane and hill districts of the North-Western Provinces, the whole of the Punjab plains, Sind, Baluchistan, West Rajputana, Coorg, Mysore, the Konkan, the Bombay Deccan, the east of the Central Provinces and East Coast Central. The deficiency was serious over the Punjab, Rajputana, Baluchistan and the North-Western Provinces over the greater part of which area rain is usually received in moderate amounts in the month of January.

(2) The rainfall of the month was unusually large in amount over the greater part of Madras. The excess increased in amount southwards and was greatest in the southern districts.

(3) The rainfall was in slight excess in Gujarat, Kathiawar, Khandesh and Central India East.

The following table gives mean actual, mean normal and variation rainfall data for the 56 meteorological divisions or districts into which India is divided:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, January 1902.	Average normal, January.	Average actual, January 1902.	Average normal, January.	Variation, of actual from normal, January 1902.
Burma	Tenasserim	...	...	...	...	...
	Lower Burma (Deltaic)	...	...	...	...	...
	Central ditto	...	...	...	...	...
	Upper ditto	...	...	...	...	...
	Arakan	...	...	...	...	...

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, January 1902.	Average normal, January.	Average actual, January 1902.	Average normal, January.	Variation of actual from normal, January 1902.
				Inches.	Inches.	Inches.
Bengal and Assam	Eastern Bengal	0	0·9	0	0·43	−0·43
	Assam (Surma)	0·4	1·2	0·13	0·47	−0·34
	Do. (Hills)	0·8	1·4	0·30	0·62	−0·32
	Do. (Brahmaputra)	1·4	2·2	0·52	0·86	−0·34
	Deltaic Bengal	0	0·7	0	0·36	−0·36
	Central do.	0	1·0	0·01	0·48	−0·47
	North do.	0·1	1·1	0·03	0·48	−0·45
	Bengal Hills	0·6	1·8	0·20	0·76	−0·56
	Orissa	0·7	0·5	0·23	0·26	−0·03
	Chota Nagpur	0·5	1·0	0·19	0·53	−0·34
	Bihar (South)	0·7	1·5	0·24	0·74	−0·50
	Do. (North)	0	1·3	0	0·67	−0·67
North-Western Provinces and Oudh.	North-Western Provinces (East)	1·1	1·5	0·43	0·71	−0·28
	Oudh (South)	0·6	1·5	0·14	0·76	−0·62
	Do. (North)	0·1	1·6	0·03	0·79	−0·76
	North-Western Provinces (Central)	0·9	1·4	0·42	0·62	−0·20
	Do. do. (West)	0	1·4	0·01	0·58	−0·57
	Do. do. (East Submontane)	0·2	1·3	0·02	0·18	−0·16
	Do. do. (West do.)	0	2·6	0·02	1·40	−1·38
	Do. do. (Hills)	0	3·9	0	2·32	−2·32
Punjab and North-West Frontier Province.	Punjab (South-East)	0	1·5	0	0·72	−0·72
	Do. (South)	0	1·3	0	0·65	−0·65
	Do. (Central)	0	2·0	0	1·11	−1·11
	Do. (Submontane)	0	2·5	0·01	1·56	−1·55
	Do. (Hills)	0·9	4·2	0·23	3·36	−3·13
	Do. (North)	0	3·0	0	2·00	−2·00
	Do. (West)	0	1·3	0	0·59	−0·59
Bombay and Malabar Coast Districts (Madras).	Malabar	0·5	0	0·20	0·17	+0·03
	Travancore	1·6	...	0·97	...	...
	Madras (South Central)	2·2	0·1	1·08	0·13	+0·95
	Coorg	0·1	...	0·02	...	...
	Mysore	0·2	0·2	0·09	0·11	−0·02
	Konkan	0	0·2	0·01	0·13	−0·12
	Bombay Deccan	0·1	0·2	0·08	0·09	−0·01
	Khandesh	0·9	0·3	0·45	0·13	+0·32
Central Provinces and Berar.	Berar	0·4	0·6	0·13	0·29	−0·16
	Central Provinces (West)	0·8	0·8	0·22	0·47	−0·25
	Do. (Central)	1·2	1·2	0·38	0·50	−0·12
	Do. (East)	0·1	0·4	0·02	0·17	−0·15
Bombay (North)	Gujarat	0·4	0·1	0·16	0·04	+0·12
	Kathiawar and Cutch	0·1	0·1	0·05	0·04	+0·01
	Sind	0	0·8	0	0·28	−0·28
	Baluchistan Hills	0·1	2·9	0·02	1·30	−1·28
Rajputana and Central India.	Central India (East)	1·4	1·1	0·80	0·46	+0·34
	Rajputana (East), Central India (West)	0·4	1·0	0·16	0·38	−0·22
	Do. (West)	0	0·5	0	0·16	−0·16
Madras	East Coast (North)	0·3	0·1	0·10	0·16	−0·06
	Madras (Central)	0·3	0	0·15	0·07	+0·08
	East Coast (Central)	0·2	0·7	0·05	0·38	−0·33
	Do. (South)	2·6	0·9	2·45	0·45	+2·00
	Madras (South)	4·8	1·1	5·13	0·56	+4·57

A few light showers fell in Cachar on the 22nd, 23rd, 26th and 31st and in the Assam hill districts on the 16th, 19th, 23rd and 26th. The Assam Valley received light to moderate scattered showers on the 18th, 23rd, 29th and 31st and fairly general rain on the 19th, 24th and 30th. The rainfall of the month was in defect over the whole area, the deficiency averaging 72 per cent. in the Surma division, 52 per cent. in the hills and 40 per cent. in the Brahmaputra Valley.

The rainfall of the month was even lighter than usual in Bengal, practically or actually no rain having fallen over a considerable portion of the area, including Deltaic, Central and North Bengal and North Bihar. Showers were received in South Bihar and Chota Nagpur from the 5th to the 7th during the first disturbance of the month and in Orissa on the 12th and 13th.

The rainfall of the month was normal in Orissa and in slight to moderate defect over the remainder of the province, as is shown by the following statement :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, January 1902.	Average normal, January.	Variation of actual from normal, January 1902.	Percentage variation from normal.	Average actual, January 1902.	Average normal, January.
	Inch.	Inch.	Inch.			
Deltaic Bengal . .	0	0·36	—0·36	—100	0	0·7
Central Bengal . .	0·01	0·48	—0·47	— 98	0	1·0
North Bengal . .	0·03	0·48	—0·45	— 94	0·1	1·1
Bengal Hills . . .	0·20	0·76	—0·56	—74	0·6	1·8
Orissa	0·23	0·26	—0·03	—12	0·7	0·5
Chota Nagpur . .	0·19	0·53	—0·34	—64	0·5	1·1
South Bihar . . .	0·24	0·74	—0·50	—68	0·7	1·5
North Bihar . . .	0	0·67	—0·67	—100	0	1·3

No rain fell over the greater part of the North-Western Provinces during the month. The south-eastern districts, including Ghazipur, Benares, Jaunpur, Mirzapur and Allahabad, had light to moderate showers from the 5th to the 9th. The Fatehpur, Banda, Hamirpur, Cawnpore and Jalaun districts of the central division and the Jhansi district of the west division obtained moderate showers and Oudh local showers on the 8th and 9th. Over the remainder of the province the month was practically or actually rainless.

The rainfall of the month was more or less in defect over the whole province, as is shown by the following table giving comparative data for the eight divisions of the province :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, January 1902.	Average normal, January.	Variation of actual from normal, January 1902.	Percentage variation from normal.	Average actual, January 1902.	Average normal, January.
	Inch.	Inches.	Inches.			
N.-W. Provinces East .	0·43	0·71	—0·28	—39	1·1	1·5
South Oudh . .	0·14	0·76	—0·62	—82	0·6	1·5
North „ . . .	0·03	0·79	—0·76	—96	0·1	1·6
N.-W. P. Central .	0·42	0·62	—0·20	—32	0·9	1·4
„ West . .	0·01	0·58	—0·57	—98	0	1·4
„ East submontane.	0·02	0·18	—0·16	—89	0·2	1·3
„ West „ .	0·02	1·40	—1·38	—99	0	2·6
„ Hills . .	0	2·32	—2·32	—100	0	3·9

The Punjab was rainless throughout the month. Some showers were received in the hill districts on the last three days of the month, but they were light in amount, and the rainfall of the month was hence more or less in serious defect over the whole province. The following gives comparative data for the seven divisions of the province :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, January 1902.	Average normal, January.	Variation of actual from normal, January 1902.	Percentage variation from normal.	Average actual, January 1902.	Average normal, January.
	Inch.	Inches.	Inches.			
South-East Punjab.	0	0·72	—0·72	—100	0	1·5
South Punjab .	0	0·65	—0·65	—100	0	1·3
Central Punjab .	0	1·11	—1·11	—100	0	2·0
Punjab Submontane	0·01	1·56	—1·55	— 99	0	2·5
Punjab Hills . .	0·23	3·36	—3·13	— 93	0·9	4·2
North Punjab .	0	2·00	—2·00	—100	0	3·0
West Punjab .	0	0·59	—0·59	—100	0	1·3

Baluchistan received some light local showers of no importance on the 13th and 14th. The rainfall of the month was in serious defect in that area (98 per cent).

Local showers were received in Kashmir from the 21st to the 23rd and again during the last four days of the month. They were, however, very light, and the precipitation of the month was in as large defect in that area as in the Punjab hills.

Practically no rain fell in Rajputana West throughout the month. In East Rajputana there were light showers from the 7th to the 9th, most general in the Kotah state. The rainfall of the month was barely half the small normal of the month.

A series of thunder storms occurred over Central India between the 4th and 9th during the existence of the first two disturbances of the month, giving light to moderate rain. The falls were generally light to moderate, but exceeded one inch in 24 hours at the following stations:—

STATE.	STATION.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
BUNDELKHAND	Birsinghpur	7th January	3·50
	Dhurwai	,, ,,	1·85
GWALIOR	Bhander	,, ,,	1·31
	Shujaulpur	,, ,,	1·10
RUTLAM	Rutlam	8th ,,	2·20
BHOPAL AGENCY	Narsinghgarh	,, ,,	1·80
BUNDELKHAND	Birsinghpur	,, ,,	1·75
GWALIOR	Pichhor	,, ,,	1·30
	Shujaulpur	,, ,,	1·11
	Sikarwari	,, ,,	1·03
BUNDELKHAND	Kadaura	,, ,,	1·03
GWALIOR	Pichhor	9th ,,	1·51

Although this was the only period of unsettled weather in Central India during the month, the total amounts received averaged 74 per cent. in excess of the normal, *viz.*, 0·46 inch.

The central and western districts of the Central Provinces received numerous thundershowers during the first and second periods of disturbance of the month, *viz.*, the 4th to the 6th and the 7th to the 11th. The falls were light, the only fall exceeding one inch in amount being 1·10 inches at Tikaria in the Mandla district on the 4th. The month was practically rainless in the eastern districts. The total rainfall of the month was more or less in defect of the normal over the whole province. The following gives comparative data for the three divisions of the province:—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, January 1902.	Average normal, January.	Variation of actual from normal, January 1902.	Percentage variation from normal	Average actual, January 1902.	Average normal, January.
	Inch.	Inch.	Inch.			
Central Provinces, West	0·22	0·47	—0·25	—53	0·8	0·8
Central Provinces, Central.	0·38	0·50	—0·12	—24	1·2	1·2
Central Provinces, East.	0·02	0·17	—0·15	—88	0·1	0·4

The second disturbance of the month gave numerous thundershowers in Berar on the 8th and 9th. The total rainfall of the month was, however, on the average of the whole area, 55 per cent. in defect of the normal.

Mysore obtained light local showers on the 6th and 7th. The total rainfall of the month was almost identical in amount with the small normal for the month.

Gujarat, Kathiawar and Khandesh received more than the normal rainfall of the month due to numerous thundershowers between the 7th and the 9th. The Bombay Deccan also obtained showers during the same period as Khandesh, but they were neither so numerous nor so heavy, and the total rainfall of the month was 11 per cent. below the normal. No rain fell over the remainder of the Bombay Presidency.

The whole of Madras, with the exception of the central and northern districts, obtained abnormal and moderately heavy rain during the period from the 3rd to the 8th from a strong influx of north-east winds across the south of the Peninsula. The following falls exceeding 3 inches were registered:—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
MADURA	Pamban	3rd January	5·02
TANJORE	Tiruvalur	,, ,,	3·88
	Negapatam	,, ,,	3·75
TINNEVELLY	Ambasamudram	,, ,,	3·62
TANJORE	Vedaranniyam	,, ,,	3·15
TINNEVELLY	Kayalpatnam	,, ,,	3·09
	Keeranur	,, ,,	3·06
TANJORE	Tiruvalur	4th ,,	4·95
	Tranquebar	,, ,,	3·90
	Negapatam	,, ,,	3·84
	Nidamangalam	,, ,,	3·27
	Mannargudi	,, ,,	3·22
	Neidavasal	,, ,,	3·17
TINNEVELLY	Tuticorin	7th ,,	3·39
MADURA	Mudukulattur	,, ,,	3·12
	Tirupathur	8th ,,	5·40
	Tiruchuli	,, ,,	4·90
NILGIRIS	Coonoor	,, ,,	4·77
TRICHINOPOLY	Marangapuri	,, ,,	4·30
TINNEVELLY	Nanguneri	,, ,,	3·88
NILGIRIS	Kodanad	,, ,,	3·25
PUDUKKOTTAI STATE.	Trimiem	,, ,,	3·20

Local showers were also received in the northern coast districts on the 12th and 13th.

The rainfall of the month was in excess over the whole of the Presidency with the exception of the central and northern districts of the east coast. The excess was large in amount in the southern districts which obtained from three to ten times the normal fall of the period. The following gives comparative data for the 22 collectorates and shows more fully than the data of the statement on page 35 the distribution of the rainfall of the month :—

District.	Rainfall.			
	Average actual, January 1902.	Average normal, January.	Variation of actual from normal, January 1902.	Percentage variation from normal.
	Inches.	Inch.	Inch.	
Ganjam	0·29	0·18	+0·11	+ 61
Vizagapatam	0·14	0·20	−0·06	− 30
Godavari	0·02	0·11	−0·09	− 82
Kistna	0	0·22	−0·22	−100
Nellore	0·05	0·38	−0·33	− 87
Chingleput	0·36	0·42	−0·06	− 14
Madras	1·28	0·86	+0·42	+ 49
North Arcot	0·94	0·25	+0·69	+276
South Arcot	2·19	0·46	+1·73	+376
Tanjore	5·45	0·71	+4·74	+668
Trichinopoly	2·54	0·24	+2·30	+958
Madura	4·82	0·39	+4·43	+1136
Tinnevelly	5·50	0·76	+4·74	+624
Malabar	0·21	0·19	+0·02	+ 11
South Canara	0·17	0·15	+0·02	+ 13
Salem	0·86	0·14	+0·72	+514
Coimbatore	1·37	0·11	+1·26	+1145
Nilgiris	3·71	0·37	+3·34	+903
Cuddapah	0·37	0·14	+0·23	+164
Anantapur	0·19	0·03	+0·16	+533
Bellary	0	0·04	−0·04	−100
Kurnool	0·01	0·07	−0·06	− 86

W. L. D.
and
H. R.

TABLE I.—Abstract of Observations taken at 8 A.M. at 226 Stations in India, Burma, etc., in January, 1902.

Table

Abstract of Observations taken at 8 A.M. at 226

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.				−·013								86·2	+0·1	66·1	+1·0	76·2	+0·6	20·1					28·5
1	Tenasserim and Bay Islands.	Fort Blair	61	29·933	−·003	29·925	29·991	26th	29·879	10th	·112	78·1	87·2	+0·8	75·8*	+0·2	81·6*	+0·5	11·4	89·4	26th	69·4	23rd	20·0
		Mergui	96	29·889	−·018	29·917	29·957	2nd	29·851	10th	·106	73·2	87·2	−0·9	68·6	+1·7	77·9	+0·4	18·6	90·6	24th	60·9	4th	29·7
		Tavoy	26	29·980	−·015	29·937	30·045	2nd	29·936	29th	·109	69·1	89·2	−0·3	63·1	−1·1	76·2	−0·7	26·1	92·7	26th	56·0	4th	36·7
		Moulmein	94	29·917	−·016	29·952	29·987	8th	29·855	22nd & 29th.	·132	70·4	89·2	+0·8	65·4	+0·2	77·3	+0·5	23·8	91·5	1st & 19th.	60·9	31st	30·6
2	Lower Burma	Rangoon	41		Barometer out of order.							68·7	88·0	−1·1	65·5	+1·3	76·8	+0·1	22·5	91·1	25th	61·3	31st	29·8
		Bassein	27	29·997	−·005	29·960	30·076	8th	29·935	29th	·141	67·5	85·5	−0·2	64·9	+3·2	75·2	+1·5	20·6	89·1	27th	60·8	20th	28·3
		Diamond Island	41	29·968	−·019	29·947	30·034	7th	29·916	29th	·118	76·7	85·0	+1·0	73·0	+2·0	79·0	+1·5	12·0	90·4	27th	70·7	20th	19·7
5	Arakan	Akyab	20	30·008	−·026	29·971	30·091	25th	29·939	28th	·152	64·0	82·4	+1·0	60·9	+1·6	71·7	+1·3	21·5	85·4	26th	57·1	18th	28·3
3	Central Burma	Toungoo	183	29·843	−·002	29·976	29·929	7th	29·761	29th	·168	64·4	82·3	?	57·9	+0·3	70·1	?	24·4	87·6	13th	54·1	30th	33·5
	II.—Burma Inland				+·008								82·2	−0·5	54·9	+1·3	68·6	+0·4	27·4					36·3
3	Central Burma	Thayetmyo	130	29·917	+·006	29·966	30·030	7th	29·844	29th	·186	64·7	86·5	+0·6	56·1	+2·6	71·3	+1·6	30·4	89·7	25th & 27th.	52·6	4 days	37·1
4	Upper Burma	Minbu	165	29·888	+·001	30·004	30·000	7th	29·811	29th	·189	64·3	84·7	−1·0	58·1	+2·0	71·4	+0·5	26·6	88·6	29th	53·0	18th	35·6
		Yamethin	657	29·366	+·004	30·002	29·477	7th	29·276	29th	·201	62·1	86·0	−1·2	56·4	+1·8	71·2	+0·3	29·6	91·0	25th	51·7	18th	39·3
		Mandalay	250	29·810	+·027	30·022	29·928	7th	29·709	29th	·219	63·3	85·2	+1·1	57·5	+1·5	71·4	+1·3	27·7	89·0	25th	52·8	1st	36·2
		Kindat	377	29·705	+·002	30·061	29·856	7th	29·582	29th	·274	55·2	76·4	+0·2	52·4	0	64·4	+0·1	24·0	81·3	31st	48·3	6th	33·0
		Bhamo	381	29·666	+·006	30·025	29·801	7th	29·571	28th & 29th.	·230	52·9	74·5	−2·7	48·6	+0·1	61·6	−1·3	25·9	79·5	25th	43·2	8th	36·3
4(a)	Burma Hill Stations.	Maymyo		26·511			26·613	7th	26·439	28th	·174	49·6	72·2		41·1		56·7		31·1	76·0	7th & 8th.	36·8	8th & 27th.	39·2
		Taunggyi				Barometer out of order.						54·8	67·5	−5·8	45·0	+2·8	56·3	−1·5	22·5	72·2	1st	39·1	27th	33·1
		Lashio				Litto.						53·1	75·6	+0·5	47·1	+2·1	61·4	+1·3	28·5	87·5	18th	41·1	18th & 27th.	46·4
	III.—Assam				−·013								74·0	+1·3	51·3	−0·1	62·7	+0·6	22·7					31·7
7	Surma	Silchar	104	29·970	−·010	30·031	30·087	7th	29·875	28th	·212	58·1	80·5	+2·7	53·0	+0·7	66·8	+1·7	27·5	85·4	15th	46·4	5th	39·0
9	Brahmaputra	Sibsagar	333	29·757	−·012	30·070	29·906	7th	29·609	31st	·297	52·4	70·6	+0·5	49·3	−0·2	60·0	+0·2	21·3	74·3	17th	43·9	7th & 8th.	30·4
		Dhubri	115	29·947	−·017	30·024	30·104	7th	29·796	31st	·308	55·9	74·7	+0·7	52·2	−0·9	63·5	−0·1	22·5	78·1	31st	48·8	2 days	29·3
		Tezpur	252	29·812		30·078	29·957	7th	29·703	31st	·254	54·5	71·9		52·0		62·0		19·9	75·0	4 days	47·5	8th	27·5
		Dibrugarh	394	29·738		30·074	29·865	7th	29·612	2 days	·253	53·4	72·5		49·8		61·2		22·7	76·1	3 days	43·9	8th	32·2
	IV.—Bengal and Orissa				−·017								78·7	+1·3	54·5	+0·5	66·6	+0·9	24·2					36·4
6	East Bengal	Chittagong	87	29·952	−·021	29·992	30·057	7th	29·860	22nd	·197	61·5	79·4	+1·1	55·7	+0·1	67·6	+0·8	23·7	84·4	15th	51·1	4th & 20th.	33·3
		Noakhali	43	30·006		29·998	30·117	7th	29·908	22nd	·209	62·7	78·9		54·6		66·8		24·3	83·3	15th	48·9	20th	34·4
		Comilla	36	30·010		29·995	30·116	7th	29·919	22nd	·197	59·6	80·3		54·0		67·2		26·3	84·4	15th	49·1	20th	35·3
		Sirajganj	49	30·000		30·001	30·136	7th	29·876	29th	·260	57·5	77·6		54·3		65·9		23·3	82·7	31st	47·9	4th & 19th.	34·8
		Narayanganj	26	30·029	−·013	30·004	30·159	7th	29·931	22nd	·228	60·3	78·4	+0·5	55·5	+0·3	67·0	+0·1	22·9	82·1	31st	51·8	20th	30·3
		Barisalf	13	30·028	−·029	29·987	30·148	7th	29·934	29th	·214	62·1	78·9	+1·3	55·5	+1·1	67·2	+1·2	23·4	83·3	31st	50·2	20th	33·1
		Mymensingh	59	29·985?	−·033?	29·999?	30·116	7th	29·884	22nd	·232	58·6	76·6	+1·6	55·3	?	66·0	?	21·3	79·3	15th	49·9	19th	29·4
10	Deltaic Bengal	Faridpur	46	30·008		30·004	30·145	7th	29·910	22nd	·235	57·7	78·2		52·7		65·5		25·5	83·5	31st	45·0	4th	38·5
		Jessore	33	30·031	−·014	30·012	30·162	7th	29·916	29th	·246	60·2	78·5	+0·6	53·1	+0·1	65·8	+0·4	25·4	84·6	31st	44·1	4th	40·5
		Calcutta	21	30·046	−·019	30·014	30·170	7th	29·926	29th	·244	60·1	79·4	+2·3	56·1	+0·8	67·8	+1·6	23·3	85·6	31st	49·6	2nd	36·0
		Sangor Island	25	30·041	−·014	30·011	30·159	7th	29·922	29th	·237	64·0	78·7	+2·1	59·5	+0·3	69·1	+1·2	19·2	85·4	30th	53·5	3rd	31·9
		Krishnagar	47	30·027		30·026	30·164	7th	29·900	29th	·264	59·7	79·1		52·2		65·6		26·9	86·2	31st	46·1	2nd	40·1
		Midnapore	146	29·911		30·016	30·037	7th	29·790	29th	·247	61·0†	80·9‡		55·9‡		68·4‡		25·0	92·3	31st	51·1	3rd	41·2

* Mean of 28 days. † Observations of 29 days. ‡ Mean of 26 days.

I.

stations in India, Burma, etc., in January, 1902.

Wind Direction. Number of winds from Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec., 1901, to 31st January, 1902.	Normal rainfall for period, 1st Dec. to 31st January.	Variation from normal of period, 1st Dec. to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				0·06	0·35	−0·28					**I.—Burma Coast and Bay Islands.**		
1	5	13	1	1			4	6	N 9° E	3·2				78	·760	4·6	0			0	1·02	− 1·02	1·32	7·64	− 6·32	0	Port Blair .	Tenasserim and Bay Islands.	1
29		1			1				S 67° E	2·8	2·5	2·0	+25	82	·656	3·7	0	1·40	−1·40	0	0·91	− 0·91	0	1·29	− 1·29	0	Mergui.		
31									Calm	0·7				89	·635	0	0	0·20	−0·20	0·08	0·21	− 0·13	0·08	0·27	− 0·19	0·08	Tavoy.		
	3	22	1	1	1		1	2	N 39° E	2·1	2·3	2·4	−4	80	·598	1·3	0	0·40	− 0·40	0·03	0·36	−0·33	0·03	0·41	− 0·38	0·03	Moulmein.		
										5·0	4·2	4·3	−2	83	·586	1·9	0	0·20	− 0·20	0	0·12	− 0·12	0	0·21	− 0·21	0	Rangoon .	Lower Burma.	2
9	1	5						16	N 26° W	3·5		2·9	+21	88	·594	1·4	0	0·10	− 0·10	0	0·14	− 0·14	0·21	0·27	− 0·06	0	Bassein.		
1	10	14	2					4	N 21° E	5·0	5·0	6·6	−24	73	·674	3·7	0	0·44	−0·44	0·01	0·21	− 0·20	0·01	0·91	−0·90	0·01	Diamond Island.		
	30	1							N 1° E	3·0	2·9	2·6	+12	90	·541	0·2	0	0·10	−0·10	0	0·06	− 0·06	0·43	0·76	− 0·33	0	Akyab .	Arakan.	5
6	10	3						12	N 17° W	2·0	2·0	1·9	+ 5	89	·550	3·2	1	0·20	+ 0·80	0·46	0·08	+ 0·38	0·47	0·25	+ 0·22	0·44	Toungoo .	Central Burma	3
																				0·14	0·21	−0·07					**II.—Burma Inland.**		
	6	10	7	1	2		1	3	N 43° E	2·8		2·4	+17	73	·445	2·1	0	0·10	− 0·10	0	0·02	− 0·02	0·03	0·17	− 0·14	0	Thayetmyo .	Central Burma.	3
5	1						4	21	N 50° W	4·6	5·5			77	·467	0·9	0	0·10	− 0·10	0	0	0	0·43	0·63	− 0·20	0	Minbu .	Upper Burma.	4
13	9			3	1			5	N 9° W	1·5	1·6			80	·450	0·5	1	0·20	+0·80	0·27	0·08	+ 0·19	0·40	0·57	− 0·17	0·27	Yamethin.		
	21	1	2	1	3		1	2	N 3° E	3·4				80	·468	0	0	0·10	−0·10	0	0·05	− 0·05	0	0·34	− 0·34	0	Mandalay.		
29	1	1							N 19° E	1·0	1·0			98	·435	0·1	0	0·60	−0·60	0	0·37	− 0·37	0	0·88	− 0·88	0	Kindat.		
20	1	4	1	2	1	1		1	N 73° E	1·6	1·9			98	·399	4·2	2	1·20	+0·80	0·55	0·72	− 0·17	0·67	1·14	− 0·47	0·38	Bhamo.		
27		4							N 45° E	2·0				87	·313	1·7	1	0·20	+0·80	0·13	0·06	+0·07	0·61	0·51	+ 0·10	0·13	Maymyo .	Burma Hill Stations.	4 (a)
	1	1	1	5	13	8	1	1	S 6° W					75	·328	2·2	1			0·35	0·02	+ 0·33	0·76	0·65	+ 0·11	0·25	Taunggyi.		
	2	2	3	10	4	5	4	1	S 17° E	8·1				91	·368	2·7	1			0·41	0·39	+ 0·02	0·49	1·05	− 0·56	0·41	Lashio.		
																				0·38	0·82	−0·65					**III.—Assam.**		
27		2	2						N 67° E	0·9	1·5	2·0	−25	90	·443	1·2	0	1·90	− 1·90	0·03	0·72	− 0·69	0·03	1·18	− 1·15	0·03	Silchar .	Surma.	7
18	2	6				2		3	N 6° E	1·6	1·5	1·8	−17	100	·399	9·0	1	3·70	− 2·70	0·43	1·31	− 0·88	0·60	1·88	− 1·28	0·22	Sibsagar .	Brahmaputra.	9
2	1	15	12			1			N 63° E	3·6	4·2	3·9	+8	94	·423	1·4	0	0·90	− 0·90	0·05	0·43	− 0·38	0·05	0·50	− 0·45	0·03	Dhubri.		
		18	10	3					N 67° E	2·2	2·3			93	·397	2·3	1	1·80	−0·80	0·14			0·14			0·13	Tezpur.		
	3	11	2	6	1			8	N 37° E	1·2	1·1			93	·376	1·0	3	4·00	−1·00	1·25			1·37			0·82	Dibrugarh.		
																				0·03	0·43	−0·40					**IV.—Bengal and Orissa.**		
	10	19	2						N 33° E	2·8	2·8	3·7	−24	86	·473	0·6	0	0·68	− 0·68	0	0·30	− 0·30	0	1·15	− 1·15	0	Chittagong .	East Bengal.	5
	10	2	2	3	1	1	5	7	N 21° W	1·0	0·9			86	·496	1·0	0	0·97	− 0·97	0	0·44	− 0·44	0	0·82	− 0·82	0	Noakhali.		
27	2				2				Calm	0·9				91	·464	0·8	0	1·29	− 1·29	0	0·54	− 0·54	0	0·76	− 0·76	0	Comilla.		
30								1	N 45° W	0·8	0·8			90	·431	0	0	1·07	− 1·07	0	0·47	− 0·47	0	0·58	− 0·58	0	Sirajganj.		
14	3	3	1	2		1	1	6	N 8° W	2·3		2·1	+10	91	·478	?	0	1·00	− 1·00	0	0·38	− 0·38	0	0·54	− 0·54	0	Narayanganj.		
11	5	3			2	2	1	5	N 30° W	2·2				90	·503	0·21	0	1·00	− 1·00	0	0·67	− 0·67	0	1·27	− 1·27	0	Barisal.		
22	1	1	5	1			1		N 79° E	1·3	1·2			91	·451	?	0	1·00	− 1·00	0	0·50	− 0·50	0	0·55	− 0·55	0	Mymensingh.		
17	9	1		1		1	1	1	N 6° W	?	?			93§	·457§	0	0	0·97	− 0·97	0	0·49	− 0·49	0	0·57	− 0·57	0	Faridpur .	Deltaic Bengal.	10
26	4				1				N	1·1	1·1	1·6	−31	82	·432	0·5¶	0	0·90	− 0·90	0	0·46	− 0·46	0	0·64	− 0·64	0	Jessore.		
16	5	1		1	1	2	1	4	N 39° W	3·2		3·0	+ 7	86	·451	0·8**	0	0·78	− 0·78	0	0·32	− 0·32	0	0·54	− 0·54	0	Calcutta.		
	15	7	1		2	2	1	3	N 3° E	7·8		6·3	+24	89	·536	0·91	0	0·74	− 0·74	0	0·21	− 0·21	0	0·54	− 0·54	0	Saugor Island.		
4	4	1	1	1	2	1	8	9	N 53° W	1·9				81*	·416	0·7	0	0·81	−0·81	0	0·43	− 0·43	0	0·53	− 0·53	0	Krishnagar.		
10	10	4		1	2		2	2	N 1° E	2·1	1·9			72‡	·392‡	0·5	0	0·94	− 0·94	0	0·55	− 0·55	0	0·75	− 0·75	0	Midnapore.		

‖ Mean of 25 days. § Mean of 27 days. ¶ Mean of 30 days. ** Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 226

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal	Bankura	298	29·737		30·005	29·876	7th	29·608	30th	·268	60·7	80·1		55·3		67·8		24·8	89·9	31st	49·3	3rd	40·6
		Raniganj	334	29·729		30·035	29·880	7th	29·615	29th	·265	58·5	80·6		54·4		67·5		26·2	90·2	31st	47·1	3rd	43·1
		Burdwan	99	29·965	−·024	30·018	30·102	7th	29·839	29th	·263	60·4	80·4	+1·6	55·7	+0·8	68·1	+1·2	24·7	88·6	31st	48·8	2nd	39·8
		Naya Dumka	489	?		?	?		?		?	57·4	77·9		51·7		64·8		26·2	86·9	31st	44·0	3rd	42·9
		Berhampore	67	30·003	−·015	30·022	30·151	7th	29·872	29th	·279	56·4	78·6	+1·8	54·0	+0·6	66·3	+1·2	24·6	85·8	31st	46·6	4th	39·2
		Rampur Boalia.	70	29·995		30·018	30·154	7th	29·864	31st	·290	58·3	77·2		53·1		65·2		24·1	83·8	31st	44·3	4th	39·5
		Malda	72	29·987		30·016	30·149	7th	29·853	31st	·296	57·3	76·9		50·8		63·9		26·1	84·1	31st	44·2	4th	39·9
		Bogra	61	29·985	−·008	30·002	30·125	7th	29·854	29th	·271	57·4	77·7	+1·6	53·3	+1·4	65·5	+1·5	24·4	82·3	30th	48·0	19th	34·3
12	North Bengal	Dinajpur	123	29·922	−·028	30·009	30·066	7th	29·781	31st	·285	53·1	77·5	+1·8	48·9	−0·5	63·2	+0·7	28·6	82·8	31st	43·9	2 days	38·9
		Rangpur	123	29·947		30·034	30·107	7th	29·807	31st	·300	56·0	76·2		51·3‖		63·7‖		24·9	84·1	31st	42·3	4th	41·8
		Jalpaiguri	284	29·781	−·008	30·042	29·936	7th	29·635	31st	·301	54·9	75·6	+3·6	51·9	+1·1	63·8	+2·4	23·7	79·4	14th	46·6	8th	32·8
		Cooch Behar	156	29·919		30·042	30·080	7th	29·776	31st	·304	55·9	75·9		52·6		64·3		23·3	79·6	14th	48·7	8th	30·9
17	North Bihar	Purnea	125	29·946	−·008	30·036	30·115	7th	29·809	31st	·306	51·6	77·7	+3·0	48·1	−0·2	62·8	+1·4	29·6	83·7	31st	41·3	4th	42·4
14	Orissa	Balasore	48	30·035?	−·011?	30·030?	30·158	7th	29·915	29th	·243	61·2	81·0	−0·3	55·8	+0·1	68·4	−0·1	25·2	87·9	31st	50·5	2nd & 3rd	37·4
		False Point.	21	30·045	−·016	30·009	30·146	7th	29·913	29th	·203	64·5	79·3	+0·2	58·1	−0·2	68·7	0	21·2	82·4	13th & 30th	51·0	3rd	31·4
		Cuttack	80	29·982	−·020	30·009	30·100	7th	29·865	29th	·235	63·4	83·2	−1·3	60·5	+0·7	71·9	−0·3	22·7	90·4	30th	54·6	3rd	35·8
		Puri	20	30·043		30·007	30·150	7th	29·944	29th	·206	67·5†	79·8†		64·4†		72·1†		15·4	80·6	6 days	57·1	3rd	23·5
	V.—Gangetic Plain and Chota Nagpur.				−·015								77·0	+2·5	50·1	+0·2	63·6	+1·4	26·9					42·8
15	Chota Nagpur	Hazaribagh.	2,007	28·007	−·002	30·051	28·143	7th	27·890	29th	·253	58·7	75·3	+2·2	52·6	+2·1	64·0	+2·2‡	22·7	86·2	31st	45·2	3rd	41·0
		Ranchi	2,128	27·874	−·009	30·039	28·004	7th	27·771	29th	·233	58·2	75·6	+1·2	52·5	+1·6	64·1	+1·4	23·1	83·0	31st	47·4	1st	36·6
		Daltonganj	730?	29·338		30·074	29·451	7th	29·187	30th	·264	54·8	78·1		47·8		63·0		30·3	90·1	31st	38·2	2nd	51·9
		Purulia		29·214		30·021	29·351	7th	29·091	29th	·260	59·7‖	80·2		54·4		67·3		25·8	90·8	31st	47·9	3rd	42·9
		Chaibassa	760	29·284	−·008	30·038	29·414	7th	29·168	29th	·246	57·7	80·9	−0·2	53·8	+0·7	67·3	+0·3	27·1	90·5	31st	48·5	3rd	42·0
16	South Bihar	Gaya	375	29·691	−·016	30·045	29·829	7th	29·551	30th	·278	57·3	77·4	+1·5	52·1	+0·5	64·8	+1·0	25·3	87·2	31st	44·0	2nd & 3rd.	43·2
		Dehri	351	29·707		30·036	29·864	7th	29·555	30th	·309	58·9	76·9		55·0		66·0		21·9	86·8	31st	47·1	2nd	39·7
		Patna	183	29·883	?	30·031	30·036	7th	29·741	30th	·295	57·7	76·5	+3·5	52·9	?	64·7	?	23·6	84·3	31st	44·1	3rd	40·2
		Arrah	190	29·874		30·029	30·015	7th	29·728	30th	·287	55·2	76·9		50·3		63·6		26·6	85·3	31st	42·3	3rd	43·0
		Buxar	239	29·836		30·045	29·999	7th	29·678	30th	·321	58·9	77·4		51·5		64·5		25·9	86·1	31st	42·4	3rd	43·7
17	North Bihar	Bhagalpur	160	29·915		30·037	30·086	7th	29·770	29th	·316	59·0	77·4		51·6		64·6		25·8	83·7	31st	41·6	3rd	42·1
		Darbhanga	166	29·895	−·018	30·028	30·059	7th	29·757	29th	·302	54·2	76·5	+3·6	51·4	−0·7	63·9	+1·5	24·9	81·0	31st	43·8	3rd	37·2
		Muzaffarpur	178	29·894		30·039	30·051	7th	29·754	29th	·297	53·8	76·6		48·6		62·6		28·0	82·5	31st	40·1	3rd	42·4
		Motihari	224	29·848		30·045	30·069	7th	29·713	28th	·296	55·0	76·8		45·3		61·1		31·5	83·0	31st	37·0	2nd	46·0
		Chapra	181	29·883		30·032	30·033	7th	29·738	30th	·295	54·2	76·8		49·9		63·4		26·9	84·3	31st	42·7	2nd	41·6
18	N.-W. Provinces (East).	Benares	267	29·793	−·021	30·034	29·952	7th	29·633	30th	·319	55·0	76·2	+1·9	49·3	+1·1	62·8	+1·5	26·9	83·6	31st	39·4	3rd	44·2
		Allahabad	309	29·740?	?	30·026?	29·887	7th	29·578	29th	·309	53·9	77·3	+2·9	48·2	+0·3	62·8	+1·6	29·1	87·1	30th	39·4	2nd & 3rd.	47·7
23	N.-W. Provinces (East Submontane).	Gorakhpur	256	29·793	−·016	30·026	29·953	7th	29·651	30th	·302	54·3	75·9	+3·0	49·6	+0·4	62·8	+1·7	26·3	81·4	31st	42·1	2nd	39·3
19	South Oudh	Lucknow	368	29·678	−·021	30·034	29·842	7th	29·485	30th	·357	50·1	77·1	+3·1	46·0	−0·7	61·6	+1·2	31·1	84·3	29th	38·1	4th	46·2
20	North Oudh	Bahraich	403	29·628	−·022	30·022	29·800	7th	29·455	30th	·345	52·9	75·6	+3·2	48·1	−1·0	61·9	+2·1	27·5	80·1	14th, 29th & 31st.	42·0	1st & 2nd.	38·1
21	N.-W. Provinces (Central).	Cawnpore	416	29·639	?	30·042	29·796	7th	29·464	30th	·332	51·6	77·2	+3·3	45·7	−1·4	61·5	+1·0	31·5	85·3	30th	36·5	4th	48·8
		Mainpuri	516	29·530	−·013	30·045	29·690	7th	29·332	30th	·358	51·0	75·6	+3·9	45·5	−0·7	60·6	+1·6	30·1	83·8	29th & 30th.	39·5	2nd	44·3

* Mean of 28 days. † Mean of 18 days. ‡ Mean of 27 days. § Mean of 30 days.

I—*continued.*

stations in India, Burma, etc., in January, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible.)	Normal.	Percentage variation.	Hygrometry. 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec., 1901, to 31st January, 1902.	Normal rainfall for period, 1st Dec. to 31st January.	Variation from normal of period, 1st Dec. to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
10			1			2	17	1	S 87° W	1·6	1·8			67	·362	0·9	0	1·06	−1·06	0	0·34	−0·34	0	0·47	−0·47	0	Bankura .	Central Bengal.	11
21					1		1	8	N 54° W	0·8				68	·344	0·6	0	0·97	−0·97	0	0·43	−0·43	0	0·51	−0·51	0	Raniganj.		
20	3	1			1	1	1	4	N 39° W	1·7	1·7	1·8	−6	76	·400	0·6*	0	0·81	−0·81	0	0·29	−0·29	0	0·40	−0·40	0	Burdwan.		
27	1							3	N 34° W	1·4	1·6			73	·351	1·1	0	1·17	−1·17	0	0·59	−0·59	0	0·75	−0·75	0	Naya Dumka		
20	2	1					1	7	N 32° W	1·1	1·2	1·8	−33	83	·407	1·0§	0	1·06	−1·06	0	0·41	−0·41	0	0·52	−0·52	0	Berhampore.		
31									Calm	0·2	0·2			82	·402	0·1	0	0·85	−0·85	0	0·35	−0·35	0	0·41	−0·41	0	Rampur Boalia.		
	9	1	1		1	2	3	14	N 37° W	1·5	1·3			84	·400	0·3	0	0·97	−0·97	0	0·68	−0·68	0	0·92	−0·92	0	Malda.		
19	12								N					85	·402	0·2*	0	1·06	−1·06	0·07	0·57	−0·50	0·07	0·59	−0·52	0·07	Bogra.		
	3	6	4		1	3	6	8	N 31° W	2·4	2·1			89	·363	0·6	0	0·84	−0·64	0·08	0·51	−0·43	0·08	0·55	−0·47	0·08	Dinajpur .	North Bengal.	12
17		5	7		1			1	N 73° E	1·2	1·3			90	·405	?	0	0·90	−0·90	0	0·49	−0·49	0	0·58	−0·58	0	Rangpur.		
	11	10	1	1			2	6	N 8° E	0·8	1·0			91	·395	0·5*	0	0·97	−0·97	0	0·50	−0·50	0·59	0·54	+0·05	0	Jalpaiguri.		
23		2	4	1					N 82° E	0·8	0·8			93	·417	1·7	0	0·90	−0·90	0	0·43	−0·43	0	0·51	−0·51	0	Cooch Behar.		
22		2		1		1	1	4	N 34° W	2·3	2·0	1·7	+18	90	·350	0·1‡	0	0·90	−0·90	0	0·47	−0·47	0	0·57	−0·57	0	Purnea .	North Bihar.	17
22	5				1	1		2	N 22° W	1·0				78	·427	0·7**	0	0·61	−0·61	0	0·27	−0·27	0	0·45	−0·45	0	Balasore .	Orissa.	14
10	10	1					2	8	N 24° W	5·3	5·0	6·0	−17	92	·561	2·3	0	0·71	−0·91	0·03	0·46	−0·43	0·03	1·15	−1·12	0·03	False Point.		
26	1		1				3		N 63° W	1·2		1·4	−14	84	·498	2·1‡	2	0·55	+1·45	0·70	0·16	+0·54	0·70	0·43	+0·27	0·59	Cuttack.		
13	10	3						5	N 4° W	7·3	6·9			87†	·594†	1·2*	1	0·43	+0·57	0·16	0·26	−0·10	0·16	0·91	−0·75	0·16	Puri.		
																				0·17	0·65	−0·48					V.—Gangetic Plain and Chota Nagpur.		
13	1				1	4	6	6	N 86° W	5·1	4·5	4·9	−8	58	·291	1·4	1	1·45	−0·45	0·30	0·48	−0·18	0·30	0·68	−0·38	0·30	Hazaribagh	Chota Nagpur.	15
15	1	1	1	1		2	4	6	N 60° W	3·0	3·6			61	·297	2·0	0	1·35	−1·35	0	0·29	−0·29	0	0·38	−0·38	0	Ranchi.		
26			3	2					S 76° E	1·5	1·8			80	·347	0·7	2	1·63	+0·37	0·55	0·76	−0·21	0·55	1·05	−0·50	0·35	Daltonganj.		
16							7	8	N 65° W	0·8	0·9			61	·320	0·6	0	1·35	−1·35	0	0·44	−0·44	0	0·62	−0·62	0	Purulia.		
20						4	7		N 73° W	0·9	0·8			79	·381	0·3	0	1·23	−1·23	0	0·14	−0·14	0	0·24	−0·24	0	Chaibassa.		
8		2		1	7	7	5	1	S 39° W	3·3	3·0	1·6	+88	75	·356	2·1	2	1·32	+0·68	0·59	0·59	0	0·59	0·76	−0·17	0·26	Gaya .	South Bihar.	16
2			2		9	14	3	1	S 34° W	3·9	2·5			73	·369	2·5	3	1·30	+1·65	1·22	0·59	+0·63	1·22	0·91	+0·31	0·85	Dehri.		
8		2	1	2	2	5	9	2	S 68° W	2·2	2·5	2·0	+25	79	·380	1·3¶	0	1·32	−1·32	0	0·56	−0·56	0	0·66	−0·66	0	Patna.		
27				1			3		S 63° W	0·5	0·6			80	·353	1·5	0	1·58	−1·58	0	0·88	−0·88	0	1·01	−1·01	0	Arrah.		
6	1		5	1	1	2	15		S 80° W	2·1	1·9			68	·343	1·7	0	1·65	−1·65	0	0·78	−0·78	0	0·98	−0·98	0	Buxar.		
21	1	2		1	1	3	2		S 63° W	1·9	1·8			74	·375	1·0	0	1·32	−1·32	0	0·55	−0·55	0	0·62	−0·62	0	Bhagalpur .	North Bihar.	17
23			1	1		1	3	2	W	1·2		2·3	−48	87	·367	0·1§	0	1·30	−1·30	0	0·62	−0·62	0	0·69	−0·69	0	Darbhanga.		
18			2	1		1	6	3	N 81° W	1·9	1·7			88	·367	0·8	0	1·33	−1·33	0	0·79	−0·79	0	0·86	−0·86	0	Muzaffarpur.		
	3	6	3	7	2	4	4	2	S 79° E	2·2	2·1			90	·394	0·7	0	1·32	−1·32	0	0·59	−0·59	0	0·73	−0·73	0	Motihari.		
17		2	2	2	1	4	3		S 14° W	1·3	1·5			84	·354	1·5	0	1·48	−1·48	0	0·74	−0·74	0	0·83	−0·83	0	Chapra.		
24						5	1	1	S 59° W	1·3	1·5	2·9	−48	83	·368	1·7	2	1·40	+0·60	0·47	0·67	−0·20	0·47	0·88	−0·41	0·28	Benares .	N.-W. Provinces (East).	18
14		1	6		1	1	5	3	N 45° W	2·6	3·0	3·4	−12	83	·349	1·4	1	1·60	−0·60	0·39	0·76	−0·37	0·39	1·00	−0·61	0·39	Allahabad.		
17	1	3		1	1		6	2	N 59° W	1·1		1·7	−35	84	·358	1·5	0	1·50	−1·50	0·05	0·76	−0·71	0·06	0·90	−0·84	0·05	Gorakhpur .	N.-W. Provinces (East Submontane).	23
16	1	1	1	1			11		N 84° W	1·3	1·4	2·4	−42	84	·304	0·9	0	1·90	−1·90	0	0·96	−0·96	0·06	1·34	−1·28	0	Lucknow .	South Oudh.	19
14		2	3	1			4	7	N 35° W	1·5	1·4			87	353	0·4	0	1·90	−1·90	0	0·92	−0·92	0·21	1·26	−1·05	0	Babraich .	North Oudh.	20
15		3	1	1	1	4	3	3	S 86° W	1·9				78	·297	1·1	0	1·60	−1·60	0·07	0·68	−0·61	0·07	0·85	−0·78	0·07	Cawnpore .	N.-W. Provinces (Central).	21
25			1				5		W	0·9	0·9			72	·274	2·7	0	1·50	−1·50	0	0·73	−0·73	0·80	1·07	−0·27	0	Mainpuri.		

‡ Mean of 21 days. ¶ Mean of 29 days. ** Mean of 23 days.

Table

Abstract of Observations taken at 8 A.M. at 226

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas				−·012								72·7	+4·2	42·5	−0·7	57·6	+1·8	30·2					45·7
24	N.-W. Provinces (West Submontane).	Bareilly	569	29·464	−·013	30·043	29·649	7th	29·265	30th	·384	49·7	73·0	+2·4	46·5	+0·4	59·8	+1·4	26·5	78·8	29th	39·7	3rd	39·1
		Dehra Dun	2,233	27·754	−·008	30·071	27·936	7th	27·586	30th	·350	48·4	70·3	+4·1	45·6	+0·8	58·0	+2·5	24·7	77·0	29th	41·5	1st	35·5
		Roorkee	887	29·132	−·009	30·063	29·303	7th	28·948	30th	·355	45·6	73·5	+3·9	41·8	?	57·7	?	31·7	78·8	29th & 30th.	34·3	2nd	44·5
22	N.-W. P. (West)	Meerut	738	29·286	−·022	30·054	29·458	7th	29·093	29th & 30th.	·365	46·4	74·4	+4·0	43·9	−1·1	59·2	+1·5	30·5	81·5	29th	35·1	4th	46·4
26	South-East Punjab.	Delhi	718	29·312	−·024	30·051	29·473	7th	29·108	29th	·365	50·5	73·5	+2·8	48·5	+0·6	61·0	+1·7	25·0	83·7	29th	42·2	14th	41·5
28	Central Punjab.	Lahore	702	29·333	−·016	30·077	29·532	7th	29·011	29th	·491	41·1	73·0	+4·0	39·0	−1·7	56·0	+1·2	34·0	82·0	29th	31·5	7th	50·5
27	South Punjab	Sirsa	662	29·375	−·019	30·061	29·522	8th	29·136	29th	·386	46·6	75·2	+4·2	42·0	−1·1	58·6	+1·6	33·2	85·8	22nd & 29th.	35·0	4th	50·8
		Patiala	818	29·208		30·065	29·387	7th	28·981	29th	·406	46·0	72·9		41·9		57·4		31·0	82·4	29th	34·6	3rd	47·8
29	Punjab (Submontane).	Ludhiana	812	29·217	−·009	30·039	29·403	7th	28·970	29th	·433	45·5	71·0	+3·8	43·5	−0·8	57·3	+1·5	27·5	80·6	29th	38·1	3rd, 5th & 6th.	42·5
		Sialkot	830	29·200	−·003	30·076	29·384	7th	28·897	29th	·487	45·6	71·0	+4·8	41·7	−1·1	56·4	+1·9	29·3	78·5	29th	34·1	3rd	44·4
		Umballa	892	29·131	+·004	30·069	29·298	7th	28·926	29th	·372	45·7	74·0	+6·2	39·8	?	56·9	?	34·2	84·0	29th	32·0	4th	52·0
31	North Punjab	Rawalpindi	1,674	28·326	−·018	30·123	28·513	7th	28·005	29th	·508	39·2	70·5	+7·4	35·4	−2·5	53·0	+2·5	35·1	79·9	22nd	26·0	6th	55·9
	VII.—North-West Frontier, Indus Valley and North-West Rajputana.				−·020								77·2	+5·2	44·4	−1·4	60·9	+1·9	32·8					50·5
31	North Punjab	Peshawar	1,110	28·336	−·041	30·131	29·124	7th	28·635	29th	·489	41·3	69·7	+6·2	38·0	−1·6	53·9	+2·3	31·7	75·1	20th	29·4	6th & 8th.	45·7
32	West Punjab	Khushab	612	29·446	−·009	30·090	29·644	7th	29·138	29th	·506	42·5	73·4	+5·8	37·5	−3·8	55·5	+1·0	35·9	80·2	19th	27·4	6th	52·8
		Montgomery	558	29·495	−·013	30·070	29·686	7th	29·223	29th	·463	44·7	74·0	+5·5	39·5	−2·7	56·8	+1·4	34·5	83·0	22nd	30·5	6th	52·5
		D. I. Khan	594	29·480	−·027	30·081	29·672	7th	29·203	29th	·469	40·9	73·9	+4·8	37·0	−3·4	55·5	+0·7	36·9	80·3	27th	28·0	5th	52·3
		Mooltan	420	29·647	−·027	30·074	29·844	7th	29·410	29th	·434	45·8	75·5	+5·3	43·0	−0·3	59·3	+2·5	32·5	83·3	23rd	36·0	6th & 9th.	47·3
47	Sind	Jacobabad	186	29·885	−·033	30·050	30·070	7th	29·691	29th	·379	46·2	78·6	+5·0	41·4	−1·9	60·0	+1·6	37·2	88·5	20th & 21st.	32·0	10th	56·5
		Hyderabad	96	29·990	−·023	30·046	30·141	9th	29·841	29th	·300	55·5	81·5	+4·7	50·5	−0·6	66·0	+2·1	31·0	95·1	20th	43·0	4th	52·1
		Kurrachee	30	30·070	−·011	30·052	30·211	9th	29·945	24th	·266	59·5	81·2	+4·3	55·1	+0·6	68·2	+2·5	26·1	89·4	26th	46·2	30th	43·2
51	West Rajputana	Bikaner	771	29·274	−·014	30·070	29·439	7th	29·049	29th	·390	52·0	77·0	+5·2	48·2	−1·2	62·6	+2·0	28·8	87·2	21st & 22nd.	39·1	6th	48·1
		Pachpadra	380	29·701	+·003	30·069	29·796	7th	29·512	29th	·284	52·5	83·4	+1·1	46·2	+1·1	64·9	+3·1	37·2	93·5	28th	34·5	6th	59·0
		Jodhpur	782	29·270		30·085	29·382	6th	29·087	29th	·295	56·7	81·4		52·2		66·8		29·2	91·1	22nd & 28th.	45·2	1st, 19th 30th.	45·9
	VIII.—East Rajputana, Central India and Gujarat.				−·010								82·2	+3·5	52·9	+1·3	67·5	+2·4	29·3					47·3
50	East Rajputana	Jaipur	1,431	28·609	−·006	30·090	28·734	7th	28·412	29th	·322	53·5	79·3	+1·7	47·9	−0·1	63·5	+2·3	31·4	89·2	22nd & 23rd.	38·0	5th & 31st	51·2
		Kotah	819	29·222		30·094	29·318	1st	29·023	29th	·295	56·6	80·6		52·2		66·4		28·4	91·5	29th	44·0	5th & 6th.	47·5
		Sambhar	1,264	28·788	+·001	30·100	28·914	7th	28·581	29th	·333	47·7	78·2	+4·6	44·2	−1·2	61·2	+1·7	34·0	88·4	22nd & 28th.	35·5	5th	52·9
		Ajmer	1,611	28·429	−·013	30·120	28·512	7th	28·232	29th	·310	48·5	79·2	+5·1	45·0	−0·5	62·1	+2·3	34·2	89·4	22nd, 23rd & 28th.	36·9	5th	52·5
		Udaipur	1,925	28·116		30·094	28·186	26th	27·987	29th	·199	57·2	79·5		49·1		64·3		30·4	90·5	22nd	41·2	31st	49·3
		Deesa	466	29·575	−·021	30·025	29·649	1st	29·456	29th	·193	58·6	87·6	+4·5	53·2	+1·7	70·4	+3·1	34·4	95·1	27th & 28th.	44·1	31st	52·0
46	Kathiawar and Cutch.	Bhuj	395	29·673	−·004	30·042	29·755	9th	29·571	29th	·184	62·1	84·0	+3·6	55·1	+0·7	69·6	+2·2	28·9	97·3	28th	48·0	6th & 31st.	49·3
		Jamnagar	61	30·016		30·023	30·092	17th	29·921	29th	·171	61·2	82·6		54·5		68·5		28·1	89·0	28th	41·1	6th	47·9
		Rajkot	429	29·619	−·011	30·024	29·692	17th	29·538	29th	·154	61·2	86·6	+2·6	52·7	+1·6	69·7	+2·1	33·9	95·4	27th & 28th.	41·0	4th	54·4
		Veraval	8	30·031	−·010	29·991	30·112	17th	29·975	29th	·137	66·0	84·2	+2·7	61·4	+2·6	72·8	+2·7	22·8	94·1	2nd	55·3	6th	38·8
		Dwarka	37	30·040		30·024	30·127	17th	29·957	29th	·170	67·3	78·8		61·0		69·9		17·8	85·9	27th	54·1	4th & 5th.	31·8
		Bhavnagar Para.	55	30·013?	?	30·016?	30·079	17th	29·918?	29th	·161	62·5	87·2	+4·7	55·6	?	71·4	?	31·6	94·1	27th	45·2	5th	48·9
49	Central India	Nowgong	757	29·287	−·029	30·058	29·404	8th	29·124	29th	·280	52·2	76·2	+1·1	47·7	+0·7	62·0	+0·9	28·5	87·0	25th	40·0	1st, 2nd & 4th.	47·0
		Indore	1,823	28·206	0	30·053	28·279	26th	28·104	29th	·175	60·9	83·1	+3·7	51·2	+1·4	67·2	+2·6	31·9	90·3	23rd	44·1	5th & 6th.	46·2
		Neemuch	1,630	28·416	+·006	30·093	28·492	9th	28·267	29th	·225	56·2	80·2	+2·6	50·1	+1·4	65·2	+2·0	30·1	90·5	23rd	42·6	5th	47·9

I—*continued.*

***stations in India, Burma, etc., in January, 1902*—continued.**

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec., 1901, to 31st January, 1902.	Normal rainfall for period, 1st Dec. to 31st January.	Variation from normal of period, 1st Dec. to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				0	1·67	—1·67					VI.—Upper Sub-Himalayas.		
28			1				1	1	N 45° W	0·5	0·5	2·8	− 82	82	·292	1·0	0	2·36	− 2·36	0	1·05	−1·05	0·57	1·38	− 0·81	0	Bareilly .	N.-W. Provinces (West, Submontane).	24
31									Calm	0·1		1·2	− 94	68	·233	1·3	0	3·50	− 3·50	0	2·38	−2·38	0·41	3·18	− 2·77	0	Dehra Dun.		
24		1				3		3	N 78° W	1·3		2·2	− 41	80	·247	0·6	0	2·80	− 2·80	0	1·68	−1·68	0·41	2·29	− 1·88	0	Roorkee.		
22			1				8		W	1·1	1·1	2·1	− 48	71	·229	1·2	0	2·30	− 2·30	0	1·35	−1·35	0·14	1·83	− 1·69	0	Meerut.	N.-W. P. (West).	22
1	5	1	4	2	1		13	4	N 59° W					53	·199	1·2	0	2·40	− 2·40	0	1·23	−1·23	0·08	1·76	− 1·68	0	Delhi .	South-East Punjab.	26
25	1			2			3		S 75° W	1·2		1·9	− 37	75	·196	2·2	0	1·90	− 1·90	0	1·12	−1·12	0	1·50	− 1·50	0	Lahore .	Central Punjab	28
8	1	7	2	2		3	1	7	N 2° E	3·2	2·9	2·6	+ 12	61	·199	0	0	1·50	− 1·50	0	0·84	−0·84	0·22	1·15	− 0·93	0	Sirsa .	South Punjab.	27
8	5	3	2	3	1	1	4	4	N 9° W	3·8	3·8			74	·231	1·8	0			0			0·16			0	Patiala.		
12		4		2	1	3	6	3	N 86° W	1·8	1·6	1·1	+ 45	69	·211	1·4	0	2·60	− 2·60	0	1·84	−1·84	0·34	2·62	− 2·28	0	Ludhiana .	Punjab (Submontane).	29
19	2	1	5	2			1	1	N 69° E	1·0		1·4	− 29	66	·196	1·7	0	3·40	− 3·40	0	2·51	−2·51	0	3·03	− 3·03	0	Sialkot.		
29				1				1	Calm	1·1				77	·232	1·2	0	2·80	− 2·80	0	1·62	−1·62	0·32	2·44	− 2·12	0	Umballa.		
16	10	2				1	1	1	N 5° W	2·0	1·8	1·9	− 5	55	·144	2·4	0	4·20	− 4·20	0	2·74	−2·74	0	3·48	− 3·48	0	Rawalpindi.	North Punjab.	31
																				0	0·57	− 0·57					VII.—North-West Frontier Indus Valley and North-West Rajputana.		
22		1		1	3	3		1	S 19° W	1·4	1·5	2·5	− 40	59	·155	2·8	0	2·90	− 2·90	0	1·60	−1·60	0·04	1·93	− 1·89	0	Peshawar .	North Punjab.	31
16	2	5	1				6	1	N 19° W	3·4	3·9			37	·101	2·3	0	1·50	− 1·50	0	0·82	−0·82	0	1·36	− 1·36	0	Khushab .	West Punjab.	32
12	2	2	3	5	3		3	1	S 60° E	3·5	3·0			46	·139	2·1	0	1·30	− 1·30	0	0·84	−0·84	0	1·26	− 1·26	0	Montgomery.		
27		1					3		N 27° W	1·1	1·2	1·4	− 14	59	·155	3·4	0	1·40	− 1·40	0	0·44	−0·44	0	0·65	− 0·65	0	D. I. Khan.		
19	1	6		3	1			1	N 72° E	1·0	1·2	1·7	− 29	60	·182	1·6	0	1·10	− 1·10	0	0·45	−0·45	0	0·64	− 0·64	0	Mooltan.		
17	5	1		1		2		5	N 27° W	2·7	2·8	2·1	+ 33	52	·161	2·8	0	1·00	− 1·00	0	0·27	−0·27	0	0·36	− 0·36	0	Jacobabad .	Sind . . .	47
7	18					5		1	N 15° W	6·6	6·9	7·2	− 4	50	·231	1·0	0	0·70	− 0·70	0	0·24	−0·24	0·07	0·29	− 0·22	0	Hyderabad.		
8	3	10	4			2	1	3	N 31° E	5·1	6·4	10·0	− 36	60	·320	1·3	0	1·10	− 1·10	0	0·66	−0·66	0	0·79	− 0·79	0	Kurrachee.		
2			3	12	7	1	5	1	S 18° E	5·1		2·9	+ 76	46	·181	2·4	0	1·10	− 1·10	0	0·39	−0·39	0	0·56	− 0·56	0	Bikaner .	West Rajputana	51
	14	6	5	1	2		2	1	N 24° E	5·0	4·5	2·8	+ 61	50	·203	0	0	1·00	− 1·00	0	0·38	−0·38	0·07	0·50	− 0·43	0	Pachpadra.		
11	3	16	1						N 41° E	4·1	3·7			34	·158	2·5	0	0·90	− 0·90	0	0·23	−0·23	0·05	0·38	− 0·33	0	Jodhpur.		
																				0·20	0·27	−0·05					VIII.—East Rajputana Central India and Gujarat.		
10	3	5	1	2	1	2	1	6	N 6° W	2·6		3·9	− 33	50	·209	1·8	0	1·50	− 1·50	0	0·60	−0·60	0	0·79	− 0·79	0	Jaipur .	East Rajputana.	9
22	1			1	2	2	2	1	S 54° W	1·9	2·2			53	·215	0·8	1	0·70	+ 0·30	0·38			0·38			0·37	Kotah.		
28	1	1	1						N 45° E	2·3		4·5	− 49	46	·159	1·6	0	1·10	− 1·10	0	0·39	−0·39	0	0·74	− 0·74	0	Sambhar.		
19	1	4				1		6	N 16° W	2·3		1·9	+ 21	65	·231	2·4	0	1·30	− 1·30	0	0·44	−0·44	0·04	0·71	− 0·67	0	Ajmer.		
25	1						2	2	N 61° W	1·7	1·7			50	·238	1·1	0	0·30	− 0·30	0·04			0·04			0·04	Udaipur.		
	6	19	4			1	1		N 40° E	6·6		8·6	− 23	41	·197	0·7	0	0·36	− 0·36	0	0·15	−0·15	0·07	0·21	− 0·14	0	Deesa.		
	2	2		5	1	12	6	3	S 58° W	8·2		6·0	+ 37	77	·446	1·3	0	0·10	− 0·10	0	0·07	−0·07	0·11	0·14	− 0·03	0	Bhuj . .	Kathiawar and Cutch.	46
4	1	7	5	3	4	3	3	1	S 76° E	8·9	10·6			62	·358	1·1	0			0			0·16			0	Jamnagar.		
3	1	9	7	1	2		4	4	N 44° E	6·0	5·9	5·2	+ 13	53	·299	1·4	0	0·20	− 0·20	0	0·04	−0·04	0·01	0·08	− 0·07	0	Rajkot.		
	14	8	1					8	N 2° E	7·7		5·1	+ 51	52	·332	1·1	0	0	0	0	0	0	0	0·09	− 0·09	0	Veraval.		
	9	12	3				2	5	N 16° E	11·9				74	·429	1·5	0			0			0·01			0	Dwarka.		
	1	1	1				12	15	N 60° W	6·2	5·8			46	·274	1·4	0	0·10	− 0·10	0	0·07	−0·07	0	0·14	− 0·14	0	Bhavnagar Para.		
8	2		1	4	4	3	3	6	S 63° W	1·3	1·3	1·4	− 7	76	·309	1·6	2	1·70	+ 0·30	0·35	0·71	− 0·36	0·35	1·26	− 0·91	0·23	Nowgong .	Central India.	49
16	1	8		1		1	2	2	N 19° E	3·2		2·5	+ 28	63	·341	1·9	1	0·40	+ 0·60	0·26	0·13	+0·13	0·26	0·33	− 0·07	0·18	Indore.		
	6	13	6	1	1	1		3	N 41° E	6·0	5·4	8·1	− 33	60	·270	1·9	1	0·40	+ 0·60	0·52	0·21	+0·31	0·52	0·49	+ 0·03	0·59	Neemuch.		

Table

Abstract of Observations taken at 8 A.M. at 226

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
45	Gujarat	Surat	39	30·006	−·006	29·989	30·079	17th	29·938	4th	·141	65·8	90·7	+3·8	60·3	+3·8	75·5	+3·8	30·4	97·7	27th	51·6	4th	46·1
		Ahmedabad	163	29·887?	−·021?	30·006?	29·953	9th	29·797	29th	·156	65·9	88·1	+4·1	59·7	+2·7	73·9	+3·4	28·4	96·2	27th & 28th	52·2	6th	44·0
22	N.-W. P. (West)	Agra	555	29·500	−·026	30·057	29·649	7th	29·307	29th	·342	53·0	77·0	+3·5	49·7	+1·1	63·4	+2·3	27·3	88·0	29th	41·0	4th	47·0
21	N.-W.P. (Central)	Jhansi	858	29·201	−·013	30·071	29·333	8th	29·023	29th	·310	56·9	78·3	+1·9	53·7	+2·6	66·0	+2·3	24·6	90·2	29th	46·2	4th	44·0
	IX.—Deccan				−·013								86·0	+2·8	57·0	+2·0	71·5	+2·4	29·0					40·7
38	Bombay (Deccan)	Belgaum	2,539	27·457	−·018	29·965	27·515	27th	27·399	5th	·116	68·1	85·3	+1·8	58·5	+1·0	71·9	+1·4	26·8	89·3	24th	53·9	23rd	35·4
		Sholapur	1,590	28·438	−·008	30·016	28·512	9th	28·384	30th	·128	69·2	89·9	+2·2	61·1	+2·9	75·5	+2·6	28·8	93·7	29th & 30th.	53·6	20th & 21st	40·1
		Poona	1,840	28·173	−·023	30·035	28·237	26th	28·107	5th	·130	59·7	89·8	+3·9	54·9	+0·6	72·3	+2·3	34·9	93·0	23rd	49·5	31st	43·5
		Bijapur	1,946	28·083	?	30·015	28·145	26th	28·022	5th	·123	68·7	88·9	+3·7	60·7	+2·7	74·8	+3·2	28·2	92·9	24th	54·6	22nd	38·3
40	Khandesh	Malegaon	1,430	28·608?	−·007?	30·050?	28·682	26th	28·534	30th	·148	62·2	89·5	+3·9	54·8	+2·9	72·2	+3·4	34·7	94·4	23rd	49·2	18th & 19th.	45·2
		Ahmednagar	2,152	27·894	+·015	30·049	27·960	26th	27·829	30th	·131	64·8	86·9	+2·9	52·8	+2·1	69·9	+2·5	34·1	89·9	23rd & 29th.	44·4	19th	45·5
41	Berar	Akola	930	29·099	−·020	30·021	29·206	8th	29·003	29th	·203	63·4	89·7	+4·5	55·5	+2·1	72·6	+3·3	34·2	94·4	23rd	47·4	20th	47·0
		Amraoti	1,215	28·816	−·006	30·022	28·902	8th	28·716	29th	·186	67·9	88·6	+4·0	61·5	+3·7	75·1	+3·9	27·1	93·2	23rd & 24th	56·5	29th	36·7
42	Central Provinces (West).	Khandwa	1,044	28·986	−·015	30·038	29·060	26th	28·895	29th	·164	60·6	88·5	+4·6	55·1	+3·3	71·8	+4·0	33·4	95·2	23rd	46·6	20th	48·6
		Hoshangabad	1,006	29·043	−·008	30·066	29·145	8th	28·935	29th	·210	57·4	80·0	?	52·3	?	66·2	?	27·7	87·7	4 days	46·3	20th	41·4
		Nagpur	1,025	29·001	−·020	30·025	29·090	9th	28·900	29th	·190	63·0	87·0	+3·5	57·9	+2·3	72·5	+2·9	29·1	93·6	24th	50·2	14th	43·4
43	Central Provinces (Central)	Chanda	634	29·420	−·002	30·031	29·511	9th	29·325	29th	·186	62·0	87·7	+2·3	54·5	+0·4	71·1	+1·4	33·2	92·2	5 days	48·6	27th	43·6
		Seoni	2,033	27·985	−·017	30·042	28·075	8th	27·876	29th	·199	60·2	81·8	+2·6	53·4	+2·1	67·7	+2·4	28·4	87·8	25th, 29th & 30th.	47·0	14th,	40·8
		Jubbulpore	1,327	28·692	−·025	30·051	28·780	26th	28·573	29th	·207	55·4	80·1	+2·5	50·0	+2·0	65·1	+2·3	30·1	86·9	24th, 29th & 30th.	42·4	2nd	44·5
		Saugor	1,807	28·226	−·009	30·062	28·324	8th	28·092	29th	·232	60·3	79·0	+2·1	55·2	+3·4	67·1	+2·8	23·8	86·9	29th	46·6	5th	40·3
49	Central India	Sutna	1,040	28·965	−·017	30·062	29·118	7th	28·833	29th	·285	54·2	76·8	+1·7	50·6	+3·0	63·7	+2·4	26·2	86·4	30th	41·2	2nd	45·2
44	Central Provinces (East).	Raipur	970	29·061	−·019	30·027	29·150	8th & 9th.	28·957	29th	·193	62·3	84·3	+2·7	56·2	+0·8	70·3	+1·8	28·1	90·3	30th	51·9	15th	38·4
		Sambalpur	486	29·563	−·025	30·025	29·667	8th	29·449	29th	·218	60·9	83·8	+1·6	54·7	−0·1	69·2	+0·2	29·1	90·6	31st	49·6	21st	41·0
39	Hyderabad (North).	Aurangabad	1,905	28·142		30·029	28·203	17th	28·060	29th	·143	69·3	87·6		56·7		72·1		30·9	94·4	30th	47·7	19th	46·7
		Indur		28·746			28·809	9th	28·708	5th	·101	67·6	86·9		55·3		71·1		31·6	90·8	25th & 30th.	48·1	19th & 20th.	42·7
		Bidar	2,165?	27·872?		29·990?	27·936	28th	27·776	4th	·160	75·3	85·8		63·6		74·7		22·2	90·3	31st	59·6	4th	30·7
53	Hyderabad (South).	Gulbarga	1,502	28·527	−·004	30·010	28·596	26th	28·461	29th	·135	70·7	89·8	+3·1	60·2	+1·7	75·0	+2·4	29·6	94·9	24th	54·6	22nd	40·3
		Raichur	1,326	28·689	−·008	29·996	28·756	26th	28·624	29th	·126	71·2	87·8	+1·1	64·9	+1·5	76·4	+1·3	22·9	93·1	23rd & 24th.	61·2	18th & 23rd.	31·9
		Hyderabad (Dn.)	1,690	28·334	?	30·027	28·406	26th	28·263	29th	·143	64·4	86·6	+2·1	59·7	+1·6	73·2	+1·8	26·9	91·9	24th	56·3	22nd	35·6
		Secunderabad	1,787	28·233	−·022	30·022	28·302	26th	28·163	29th	·139	64·5	87·4	+2·9	60·2	+2·1	73·8	+2·5	27·2	93·1	24th	56·2	20th & 21st.	36·9
		Hanumkonda	871	29·166		30·007	29·218	8th	29·079	29th	·169	68·4	87·3		61·9		74·6		25·4	92·0	24th & 30th.	57·2	28th	34·8
	X.—West Coast				−·014								86·7	+0·7	70·6	+1·6	78·7	+1·2	16·2					24·7
37	Konkan	Bombay	37	29·986	−·025	29·963	30·051	17th	29·905	5th	·146	72·4	85·2	+2·6	69·8	+1·9	77·5	+2·3	15·4	89·5	10th	65·5	5th & 18th	24·0
		Ratnagiri	110	29·904	−·005	29·954	29·917	27th	29·788	5th	·129	73·6	88·0	+0·3	68·8	+2·6	78·4	+1·5	19·2	93·4	7th, 9th & 10th,	63·4	22nd	30·0
		Mormugao	60	29·947 *	−·012 *	29·943 *	30·020	27th	29·869	5th	·151	73·7	86·6	+0·8	72·0	+3·1	79·4	+2·0	14·6	89·5	2nd, 9th & 10th,	68·8	31st.	20·7
		Goa	199	29·920?	+·080?	30·060?	30·032?	21st	29·789	6th	·243	74·5	83·8	?	72·3	+4·5	78·1	?	11·5	88·0	7th	69·5	26th & 28th,	18·5
		Karwar	44	29·969	−·010	29·946	30·038	27th	29·878	5th	·160	70·8	87·3	+0·4	68·0	+2·5	77·7	+1·5	19·3	90·8	1st, 7th & 8th.	63·5	28th & 31st	27·3
36	Malabar	Cochin	11	29·985	−·006	29·923	30·039	26th	29·889	5th	·150	75·2	90·7	+1·6	71·1	−0·4	80·9	+0·6	19·6	93·5	5th & 10th.	60·9	20th	32·6
		Calicut	27	29·968	−·016	29·925	30·020	25th	29·869	4th	·151	74·7	87·3	−0·3	70·1	+0·5	78·7	+0·1	17·2	90·3	10th	65·5	26th, & 27th.	24·8
		Mangalore	65	29·931	−·023	29·929	29·992	26th	29·848	4th	·144	76·2	88·2	−0·3	71·1	+1·6	79·7	+0·7	17·1	93·2	7th & 8th.	66·5	17th	26·7
		Trivandrum	198	29·794	?	29·926	29·847	13th	29·701	4th	·146	74·7	83·6	+0·2	72·0	+0·8	77·8	+0·5	11·6	86·5	1st & 3rd	68·5	14th, 18th & 25th.	18·0

* Mean of 24 days.

I—*continued.*

stations in India, Burma, etc., in January, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec. 1901 to 31st January 1902.	Normal rainfall for period, 1st Dec. to 31st January.	Variation from normal of period, 1st Dec. to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
5	10	6	8	1			1		N 42° E	5·0	4·7	5·2	−10	56	·364	0·6	1	0·20	+0·80	0·50	0·05	+0·45	0·50	0·06	+0·44	0·42	Surat . .	Gujarat . .	45
	5	11	7		1	1		6	N 33° E	3·3				41	·268	1·0	0	0·10	−0·10	0·02	0·03	−0·01	0·02	0·10	−0·08	0·02	Ahmedabad		
13		2		2		5		9	N 68° W	2·2	2·5	3·5	−29	64	·262	1·2	0	1·20	−1·20	0·02	0·53	−0·51	0·22	0·82	−0·60	0·01	Agra . .	N.-W. P. (West).	22
11	1	2		1		7	3	6	N 81° W	2·6	2·9	2·2	+32	69	·320	0·8	2	1·20	+0·80	1·65	0·62	+1·03	1·72	0·86	+0·86	1·50	Jhansi, .	N.-W. P. (Central).	21
																				0·17	0·23	− 0 05					IX.—Deccan.		
10	3	1	8	6	1		1	1	S 85° E	9·9		10·9	− 9	58	·402	1·5	0	0·20	−0·20	0	0·04	−0·04	0·02	0·16	−0·14	0	Belgaum .	Bombay Deccan.	3
3	3	2	4	13		1		5	S 80° E	9·1	11·0	7·1	+55	48	·346	1·2	0	0·20	−0·20	0	0·07	−0·07	0	0·50	−0·50	0	Sholapur,		
2	1		5			3	9	11	N 65° W	6·3	7·1	5·7	+25	60	·319	0·8	0	0·20	−0·20	0·10	0·04	+0·06	0·10	0·23	−0·13	0·06	Poona,		
28							2	1	N 75° W					63	·443	1·7	0	0·20	−0·20	0	0	0	0	0·03	−0·03	0	Bijapur,		
	1		1		1	5	15	8	N 85° W	3·9	4·5	3·9	+15	48	·281	3·5	1	0·10	+0·90	0·74	0·11	+0·63	0·74	0·37	+0·37	0·73	Malegaon .	Khandesh.	40
13	1	1		5	2			9	N 41° W	3·9	4·8			59	·361	1·4	1	0·20	+0·80	0·67	0·01	+0·66	0·67	0·51	+0·16	0·65	Ahmednagar,		
9		5	5	5	3	2	2		S 65° E	4·1	4·0	3·4	+18	49	·294	1·9	1	0·70	+0·30	0·16	0·33	−0·17	0·16	1·08	−0·92	0·10	Akola .	Berar . .	41
		12	11	2	2	3	1		N 81° E	6·1	5·4	3·2	+69	42	·286	2·0	0	0·90	−0·90	0	0·35	−0·35	0	0·92	−0·92	0	Amraoti,		
15	1	2	7	4	1			1	S 86° E	4·4		2·8	+57	58	·313	1·5	1	0·50	+0·50	0·46	0·26	+0·20	0·46	0·69	−0·23	0·30	Khandwa .	Central Provinces (West).	42
4		21		2		4			N 52° E	3·8	3·9	2·5	+56	60	·282	1·5	1	0·80	+0·20	0·20	0·26	−0·06	0·20	0·79	−0·59	0·15	Hoshangabad		
7	2	6	6	2		2	3	3	N 43° E	2·7		3·9	−31	55	·323	1·9	0	1·00	−1·00	0	0·43	−0·43	0	0·91	−0·91	0	Nagpur,		
15	2	4	5	2		1		2	N 60° E	1·8		2·1	−14	68	·390	1·5	0	0·60	−0·60	0	0·30	−0 30	0	0·64	−0·64	0	Chanda .	Central Provinces (Central).	43
	6	11	3	2	3	3	1	2	N 42° E	3·1		2·7	+15	59	·306	1·9	1	1·20	−0·29	0·37	0·53	−0·16	0·37	1·05	−0·68	0·26	Seoni,		
8	2	3	1	8	6	2		1	S 39° E			2·2		76	·340	2·3	1	1·40	−0 40	0·27	0·72	−0·45	0·27	1·05	−0·78	0·12	Jubbulpore.		
	1	8	10	5	2	2	2	1	N 88° E	4·5	5·2	2·8	+86	45	·215	1·6	2	1·50	+0·50	0·40	0·64	−0·24	0·40	1·34	−0·91	0·14	Saugor,		
5	3					1	10	12	N 61° W	2·6	2·8	4·0	−30	70	·298	2·6	3	1·80	+1·20	0·92	0·92	0	0·92	1·35	−0·43	0·70	Sutna . .	Central India.	49
26			1	2		1		1	S 38° E	2·2	2·0	2·6	−23	60	·339	1·5	0	0·80	−0·80	0	0·20	−0·20	0	0·45	−0·45	0	Raipur .	Central Provinces (East).	44
	4	9	4	2	1	3	4	4	N 19° E	1·8	1·8	1·6	+13	71	·383	0·8	0	1·00	-1·00	0	0·28	−0·28	0	0·52	−0·52	0	Sambalpur.		
14	1	6	8	2					N 74° E	6·3	6·2			44	·314	1·1	1	0·20	+0·80	0·19	0·12	+0·07	0·19	0·73	−0·54	0·13	Aurangabad,	Hyderabad (North),	39
25		1		5					S 53° E	5·2	5·0			58	·394	1·4	0	0·20	−0·20	0	0·05	−0·05	0	0·38	−0·38	0	Indur,		
1		15	3	6		6			N 82° E	11·1	9·3			60	·525	0	0	0·10	−0·10	0	0·02	−0·02	0	0·54	−0·54	0	Bidar,		
16	1	1	7	2	4				S 66° E	7·7	7·4			57	·432	0·9	0	0·20	−0·20	0	0·07	−0·07	0	0·07	−0·07	0	Gulbarga .	Hyderabad (South).	53
10		1	2	15	1	2			S 44° E	8·3	8·6			62	·470	0·9	0	0·10	−0·10	0	0	0	0	0	0	0	Raichur,		
25			1	5					S 52° E	3·2	3·1			71	·438	1·9	0			0	0·06	−0·06	0	0·23	−0·23	0	Hyderabad (Dn.),		
7	1	6	12	5					N 85° E	4·2		3·8	+11	72	·442	2·0	0	0·20	−0·20	0·02	0·06	−0·04	0·02	0·23	−0·21	0·02	Secunderabad		
10				13	8				S 28° E	6·6	5·6			73	·513	2·9	0	0·20	−0·20	0			0			0	Hanumkonda		
																				0·40	0·22	+0·19					X.—West Coast.		
	6	17	7	1					N 49° E	8·9		10·1	−12	72	·585	0·2	0	0·10	−0·10	0	0·10	−0·10	0	0·16	−0·16	0	Bombay .	Konkan.	37
6	2	1	10	12					S 73° E	4·5	4·5	9·8	−54	68	·558	0·9	0	0·20	−0·20	0	0·15	−0·15	0	0·20	−0·20	0	Ratnagiri,		
	3	4	18	5	1				N 87° E	7·5‡				82	·680	1·3	0			0	0	0	0	0	0	0	Mormugao,		
		5	26						N 83° E					77	·657	1·0	0			0	0·19	−0·19	0·03	0·25	−0·22	0	Goa.		
6	1	15	9						N 59° E	3·5				79	·593	0·7	0	0·10	−0·10	0	0·09	−0·09	0	0·16	−0·16	0	Karwar,		
3	16	9	1		1			1	N 17° E	5·0				72	·638	1·9	0	1·00	−1·00	0·01	0·54	−0·53	0·86	2·20	−1·34	0·01	Cochin .	Malabar . .	38
		17	14						N 65° E	7·1	8·9			78	·673	1·1	2	0·30	+1·70	0·68	0·19	+0·49	3·78	1·15	+2·62	0·47	Calicut,		
			19	12					S 73° E	3·3		3·9	−15	70	·632	1·2	0	0·10	−0·10	0	0·05	−0·05	1·24	0·50	+0·34	0	Mangalore.		
13	2	6	10						N 66° E	3·7	—			78	·677	2·7	4	1·30	+2·70	2·92	0·63	+2·29	3·59	2·87	+0·72	1·10	Trivandrum.		

‡ Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 226

Number of District.	Meteorological Province or District.	Station.	Elevation of barometer above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	XI.—South India				−·010								84·7	0	64·7	+0·4	74·7	+0·2	20·0					30·0
57	Madras (South)	Pamban	37	29·981	−·006	29·945	30·013	9th, 13th & 18th.	29·903	5th	·110	77·7	84·9	+3·0	74·4	−0·4	79·7	+1·3	10·5	92·3	25th	72·2	3rd	20·1
		Tinnevelly	168	29·864	−·007	29·965	29·913	13th	29·786	4th	·127	74·8	86·3	−1·4	70·9	−0·7	78·6	−1·1	15·4	93·2	24th	66·9	25th	26·3
		Madura	447	29·578	−·006	29·972	29·630	9th	29·506	4th	·124	73·7	85·5	−2·0	67·7	−0·9	76·6	−1·5	17·8	90·4	24th	62·2	25th & 30th.	28·2
		Periyakulam		29·079			29·126	13th	29·009	4th	·117	69·8	85·1		62·2		73·2		22·9	91·1	24th	55·1	30th	36·0
34	Madras, (South Central).	Salem	940	29·103	−·023	30·004	29·160	25th	29·013	4th	·147	72·3	87·9	−0·4	63·3	−0·4	75·6	−0·4	24·6	93·7	23rd	55·0	25th	38·7
		Coimbatore	1,348	28·676	−·007	29·998	28·722	25th	28·593	4th	·129	70·4	84·9	−1·9	63·8	−0·1	74·4	−1·0	21·1	90·9	23rd & 24th.	58·7	4 days	32·2
35	Coorg	Mercara	3,781	26·294	+·001		26·330	13th	26·235	4th & 5th.	·095	61·7	76·7	−1·0	56·7	+0·1	66·8	−0·5	20·0	80·0	24th, 29th & 30th.	51·1	18th	28·9
36	Mysore	Chitaldroog	2,405	27·610	−·009	29·964	27·661	26th	27·566	5th	·095	71·0	85·4	+1·6	61·9	+0·8	73·7	+1·2	23·5	88·1	7 days.	55·4	3rd	32·7
		Bangalore	3,021	27·026	−·012	30·003	27·073	9th	26·961	4th	·112	64·3	81·1	+0·9	57·4	+0·6	69·3	+0·8	23·7	85·8	23rd	51·9	18th	33·9
		Hassan	3,091	26·955	−·004	30·006	27·001	26th	26·894	4th	·107	65·2	80·0	−1·5	54·1	0	67·1	−0·8	25·9	83·7	29th	48·7	19th	35·0
		Mysore	2,518	27·513	−·009	29·996	27·562	26th	27·438	4th	·124	66·9	83·3	−0·7	59·0	−0·3	71·2	−0·5	24·3	88·1	21th	54·4	18th & 19th.	33·7
56	Madras, East Coast, South.	Negapatam	31	29·989	−·013	29·949	30·039	9th	29·890	4th	·149	75·9	81·8	0	71·8	+1·0	76·8	+0·5	10·0	84·7	23rd	68·0	23rd	16·7
		Cuddalore	12	30·022	−·010	29·964	30·077	9th	29·948	5th	·129	72·8	83·1	−0·2	68·5	+1·2	75·8	+0·5	14·6	85·1	18th & 25th.	63·2	30th & 31st.	21·9
		Trichinopoly	255	29·780	−·008	29·975	29·826	9th	29·696	4th	·130	72·4	86·0	−1·4	66·5	−0·7	76·3	−1·1	19·5	90·0	24th	59·9	25th	30·1
		Madras	22	30·026	−·015	29·979	30·076	9th & 25th.	29·964	5th	·112	74·0	83·9	−0·8	67·8	+0·4	75·8	−0·2	16·1	85·5	24th & 28th.	63·0	22nd, 29th & 31st.	22·5
		Vellore	707	29·330		30·001	29·380	26th	29·279	23rd	·101	68·0	84·6		64·7		74·8		19·9	92·9	25th	57·9	25th	35·0
55	Madras, East Coast, Central.	Nellore	71	29·984	−·002	29·989	30·041	26th	29·916	23rd	·125	72·2	86·0	0	67·3	+1·0	76·7	+0·5	18·7	92·3	23rd	63·1	18th	29·2
		Masulipatam	15	30·055	−·002	30·005	30·125	8th	29·983	23rd	·142	71·7	83·8	+0·3	65·6	+0·2	74·7	+0·3	18·2	89·0	23rd	62·2	23rd	26·8
54	Madras, Central	Cuddapah	433	29·603	−·015	29·986	29·666	26th	29·547	5th	·119	75·4	89·8	+1·4	64·5	+0·1	77·2	+0·8	25·3	94·7	24th & 30th.	59·3	2nd	35·4
		Kurnool	921	29·092	−·026	29·994	29·154	26th	29·039	29th	·115	66·0	90·0	+1·3	60·0	+1·3	75·0	+1·3	30·0	95·2	24th	53·7	23rd	41·5
		Bellary	1,475	28·546	−·009	29·999	28·607	17th & 26th.	28·489	5th	·118	70·5	90·1	+2·5	62·1	+1·6	76·1	+2·1	28·0	95·0	24th	56·1	24th & 25th.	38·9
52	Madras, East Coast, North.	Cocanada	26	30·036?	−·013?	29·997?	30·112	7th	29·960	22nd	·152	71·2	81·9	+0·9	66·0	+0·7	74·0	+0·8	15·9	91·1	23rd	62·5	17th	28·6
		Waltair (Vizag.)	226	29·834	−·017	30·007	29·910	8th	29·757	22nd	·153	72·3	81·1	−1·4	67·5	+3·9	74·3	+1·3	13·6	83·8	11th	63·9	16th	19·9
		Gopalpur	21	30·093	−·007	30·004	30·150	7th	29·947	29th	·203	66·5	80·7	+0·4	61·1	−0·1	70·9	+0·2	19·6	83·2	2nd, 18th, & 31st.	56·1	3rd	27·1
	XII.—Hill Stations.																							
48	Baluchistan	Pishin											59·1		20·7		39·9		38·4	74·3	21st	3·0	30th	71·3
		Quetta	5,502	24·740	+·053		24·866	3rd	24·635	29th	·231	30·5	59·4	+8·1	27·7	−1·6	43·6	+3·3	31·7	76·7	21st	11·8	30th	64·9
		Kalat										39·9	59·0	+6·6	18·9	−1·4	39·0	+2·6	40·1	72·3	21st & 25th.	0·2	30th	72·1
		Chaman	4,311	25·824	+·052		25·874	17th	25·707	13th	·267	41·0	60·8	+7·4	37·3	+2·6	49·1	+5·0	23·5	75·3	21st	16·1	29th	59·2
30	Punjab	Leh	11,503	19·760	+·099		19·959	12th	19·347	30th	·612	13·4	33·3	+3·5	10·8	+2·0	22·1	+2·8	22·5	43·5	28th	2·5	5th, 6th & 7th.	41·0
		Srinagar	5,204	25·025	+·028		25·200	7th	24·648	29th	·552	25·4	53·2	+14·2	23·2	−3·2	38·2	+5·5	30·0	52·9	23rd	15·1	7th.	47·8
		Sonamarg		21·891			22·059	7th	21·573	30th	·486	22·3	33·5		13·3		23·4		20·2	47·1	22nd	−5·4	31st	52·5
		Astor (Kashmir).	7,955	22·635			22·854	7th	22·220	29th	·634	24·6	41·3		21·1		31·2		20·2	49·3	22nd	11·5	5th & 6th	37·8
		Minimarg		21·409			21·596	7th	21·053	30th	·543	19·4	35·5		12·5		24·0		23·0	45·3	16th & 22nd.	−1·0	31st	46·3
		Skardu		23·030			23·303	7th	22·550	29th	·753	22·4	40·9		20·2		30·6		20·7	47·5	23rd	10·6	7th	36·9
		Dras		20·871			21·103	12th	20·440	30th	·663	−4·7	21·1		−10·4		5·4		31·5	37·3	28th	−29·4	5th	66·7
		Gilgit		25·341			25·610	7th	24·844	29th	·766	35·8	49·5	+4·3	32·4	+0·8	41·0	+2·6	17·1	55·8	24th	22·5	4th & 5th	33·3
		Chitral		24·454			24·600	6th	24·125	28th	·475	36·4	56·6		31·9		44·3		24·7	68·3	21st	25·0	1st	43·3
		Killa Drosh										40·0	54·8		37·9		46·4		16·9	64·7	21st	29·4	30th	35·3
		Para Chinar	6,000	24·511			24·654	7th	24·179	29th	·475	42·0	58·1		34·0		46·1		24·1	65·5	21st	22·2	29th	43·3
		Cherat		25·783	+·014		25·913	7th	25·487	29th	·426	48·8	58·8	+9·6	43·5	+5·6	51·2	+7·6	15·3	67·3	21st	35·0	30th & 31st.	32·3

I—*continued.*

stations in India, Burma, etc., in January, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec. 1901 to 31st January 1902.	Normal rainfall for period, 1st Dec. to 31st January.	Variation from normal of period, 1st Dec. to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				1·85	0·37	+ 1·48					XI.—South India.		
	3	22	3					3	N 37° E	10·5	11·1			89	·840	2·7	3	2·20	+0·80	7·56	1·33	+6·23	9·65	11·64	−1·99	5·02	Pamban	Madras (South).	57
	14	4	2				1	10	N 8° W	4·9	4·7			85	·733	3·8	5	1·50	+3·50	7·74	1·02	+6·72	8·44	4·77	+3·67	2·13	Tinnevelly.		
3	13	8						7	N 2° E	3·2	3·2	5·4	−41	81	·677	2·5	4	0·80	+3·20	2·96	0·24	+2·72	3·56	2·11	+1·45	2·30	Madura.		
25			1		2	2		1	S 16° W	1·8	2·0			77	·567	2·6	6	0·90	+5·10	2·63	0·63	+2·00	3·99	2·19	+1·80	1·24	Periyakulam.		
19		3	7				1	1	N 69° E	3·4	3·1	5·0	−38	78	·623	2·7	2	0·30	+1·70	0·50	0·23	+0·27	1·25	1·49	−0·24	0·39	Salem.	Madras (South Central).	34
		4	21				6		N 81° E			3·1		83	·626	1·8	5	0·50	+4·50	2·49	0·16	+2·33	4·06	1·29	+2·77	0·67	Coimbatore.		
17	3	11							N 36° E	4·6	4·3	4·3	0	78	·439	7·6	0	0·20	−0·20	0	0·02	−0·02	0·69	0·53	+0·16	0	Mercara	Coorg	35
10		1	9	6	1	2	1	1	S 65° E	7·4	6·4			61	·462	1·4	0	0·30	−0·30	0·01	0·01	0	0·28	0·10	+0·18	0·01	Chitaldroog.	Mysore	36
2	1	2	20	5		1			S 86° E	9·4	8·2	3·8	+116	74	·450	2·5	0	0·10	−0·10	0·03	0·14	−0·11	0·94	0·62	+0·32	0·03	Bangalore.		
5		7	13	6					N 87° E	3·4	3·0			73	·455	2·1	0	0·10	−0·10	0	0	0	0·64	0·18	+0·46	0	Hassan.		
	1	11	8	4	1	3	2	1	N 76° E	8·6	9·3			72	·472	1·7	1	0·10	+0·90	0·15	0	+0·15	0·61	0·17	+0·44	0·10	Mysore.		
9		11	1				2	8	N 5° E	13·2	11·6	5·4	+115	83	·754	4·7	6	1·90	+4·10	8·71	1·37	+7·34	16·28	14·16	+2·12	3·84	Negapatam.	Madras, East Coast, South.	56
25	2	1	2					1	N 31° E	1·1	1·4			88	·719	3·9	3	1·20	+1·80	3·93	0·80	+3·13	8·74	8·99	−0·25	2·03	Cuddalore.		
24	3	4							N 26° E	3·2		4·7	−32	86	·683	2·9	4	0·60	+3·40	2·88	0·27	+2·61	6·72	3·03	+3·69	1·54	Trichinopoly.		
	9	10	3		6	1		2	N 36° E	5·6		6·1	− 8	84	·713	2·6	1	2·10	−1·10	1·28	0·52	+0·76	15·95	6·54	+9·41	1·24	Madras.		
28		3							N 45° E	3·1	3·1			86	·597	3·0	1	0·70	+0·30	1·16	0·49	+0·67	12·89	3·37	+9·52	1·03	Vellore.		
7	5	1	2	1	6	1		8	N 38° W	3·5				85	·678	2·7	0	0·50	−0·50	0·01	0·55	−0·54	4·40	2·19	+2·21	0·01	Nellore.	Madras, East Coast, Central.	55
4	19	5	1	1				1	N 12° E	7·0‖		5·2	+35	86	·664	1·1	0	0·30	−0·30	0	0·07	−0·07	0·11	0·85	−0·74	0	Masulipatam.		
		9	7	10		4		1	S 80° E					69	·569	1·3	1	0·20	+0·80	0·18	0·16	+0·02	1·53	1·30	+0·23	0·15	Cuddapah.	Madras, Central.	54
27		1	2				1		N 66° E					69	·447	2·2	0	0·20	−0·20	0·01	0·07	−0·06	0·04	0·19	−0·15	0·01	Kurnool.		
13	1		5	11	1				S 59° E	3·8	4·0	3·3	+21	54	·418	2·6	0	0·10	−0·10	0	0·09	−0·09	0	0·20	−0·20	0	Bellary.		
3	9	10						9	N 2° E	9·4	7·9			78	·590	2·0	0	0·40	−0·40	0	0·11	−0·11	0	0·91	−0·91	0	Cocanada.	Madras, East Coast, North.	52
	2	11				8	6	4	N 44° W	9·9				71	·569	2·1	0	0·60	−0·60	0	0·16	−0·16	0·08	1·96	−1·88	0	Waltair (Vizag.)		
	15							16	N 23° W	10·1	9·9	6·5	+52	82	·527	0·4	1	0·40	+0·60	0·41	0·12	+0·29	0·41	0·87	−0·46	0·36	Gopalpur		
																											XII.—Hill Stations.		
																	1	4·30	−3·30	0·25	2·16	−1·91	0·25	3·36	−3·11	0·25	Pishin.	Baluchistan	48
29				1	1				S 24° E	1·9	2·0	3·8	−47	76	·129	2·7	0	4·80	−4·80	0·07	2·03	−1·96	0·07	2·84	−2·77	0·07	Quetta.		
	3		4		23		1		S 9° E					56	·136		0	3·70	−3·70	0·02	0·79	−0·77	0·02	1·44	−1·42	0·02	Kalat.		
6	1	1	9	9	3	2			S 58° E	6·7	7·4			61	·174	2·8	1	3·40	−2·40	0·25	1·30	−1·05	0·26	2·22	−1·96	0·25	Chaman.		
		16	10	1	1	1	1	1	N 63° E	1·9				56	·053	4·3	0	0·80	−0·80	0·01	0·31	−0·30	0·09	0·50	−0·41	0·01	Leh	Punjab	30
11	1	1	2	6	7	2		1	S 27° E	3·2	3·4			90	·127	3·7	0	6·40	−6·40	0	3·49	−3·49	0·20	4·40	−4·20	0	Srinagar.		
7	7	5	4	3	2		2	1	N 45° E	6·6	6·0			82	·104	3·3	6			2·16			3·57			0·65	Sonamarg.		
	2	4			3	19	3		S 51° W	6·1				66	·099	5·1	3			0·63			0·85			0·26	Astor		
9		3	7	7	2		2	1	S 70° E	9·0	9·5			58	·066	4·4	7			3·98			5·81			0·95	(Kashmir). Minimarg.		
19	1	3		1		1	5	1	N 56° W	2·9	3·5			99	·124	5·6	1	3·00	−2·00	0·18	1·71	−1·53	0·26	2·42	−2·16	0·11	Skardu.		
29		1						1	N	0·5	0·5			99	·048	4·0	1	8·70	−7·70	0·72	3·98	−3·26	1·58	6·17	−4·59	0·33	Dras.		
25	1			1		2	1	1	S 78° W	2·5	2·3			59	·127	6·3	0	0·30	−0·30	0·04	0·21	−0·17	0·12	0·30	−0·18	0·04	Gilgit.		
23	1		1		3		3		S 45° W					67	·141	4·0	2			0·35			0·40			0·15	Chitral.		
25	1						5		N 79° W					52	·126	3·8	2			0·76			0·89			0·40	Killa Drosh.		
27		1					1	2	N 45° W	3·2				47	·125	2·8	0	1·00	−1·00	0	0·63	−0·63	0·05	1·42	−1·37	0	Para Chinar.		
	4	9		1	1	1		15	N 13° W	9·5	8·8			27	·090	2·2	0			0	2·07	−2·07	0	3·07	−3·07	0	Cherat.		

‖ Mean of 20 days.

Table

Abstract of Observations taken at 8 A.M. at 226

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
30	Punjab—*concld.*	Murree	6,333	23·890	+·026		24·028	7th	23·584	29th	·444	45·5	54·1	+6·9	39·4	+4·2	46·8	+5·5	14·7	62·2	20th & 22nd	29·0	31st	33·2
		Peo											49·0		27·9		38·5		21·1	61·1	22nd	20·4	4th	40·7
		Simla	7,224	23·150	+·038		23·281	7th	22·939	30th	·292	42·6	50·7	+6·2	40·0	+5·5	45·4	+5·9	10·7	57·6	29th	31·2	5th	26·4
25	North-Western Provinces.	Chakrata	7,022	23·309	+·010		23·441	7th	23·189	30th	·255	42·8	56·9	+6·3	39·7	+3·5	48·3	+4·9	17·2	67·7	28th	32·4	4th	35·3
		Mussooree	6,705	23·488	+·012		23·750	7th	23·462	30th	·468	43·9	52·2	+3·3	40·5	+2·9	46·4	+3·1	11·7	60·2	29th	34·0	5th	26·2
		Ranikhet	6,069	24·147	+·014		24·283	7th	24·041	30th	·242	44·9	56·6	+2·1	42·0	+2·0	49·3	+2·1	14·6	63·2	28th & 29th.	33·5	5th	29·7
		Muktesar		22·868			22·986	8th	22·773	23rd & 30th	·216	43·1	54·7		37·5		46·1		17·2	61·7	28th	30·4	5th	31·3
13	Bengal	Yatung	10,480										44·3		22·2		33·3		22·1	52·1	14th†	15·9	5th	36·2
		Darjeeling	7,376	23·037	+·018		23·160	7th	22·932	29th	·228													
		Gangtok	5,660	24·481			24·507	8th	24·456	28th	·051	45·3	59·4		23·1		41·3		36·3	71·2	31st	19·0	4th, 5th & 19th.	52·2
	Central India	Mount Abu	3,945	26·136	−·002		26·229	26th	25·975	29th	·254	60·8	69·6	+3·0	54·5	+3·3	62·1	+3·2	15·1	77·6	22nd	45·6	5th & 6th	32·0
		Pachmarhi	3,528	26·545	−·011		26·631	26th	26·457	30th	·177	59·6	74·1	+2·8	50·0	+2·5	62·1	+2·7	24·1	78·1	4 days	44·3	20th	33·8
	South India	Wellington	6,200	24·291	−·008		24·331	9th	24·244	4th	·087	55·2	66·8	−0·8	44·7	−0·5	55·8	−0·7	22·1	71·7	24th	34·7	25th	37·0
		Kodai Kanal	7,688	22·853			22·896	9th	22·821	24th	·069	52·3	60·4		45·6		51·8		14·8	68·5	29th	39·4	26th	29·1
		Ootacamund		23·085			23·115	9th	23·033	4th	·086	55·7	62·6		44·1		53·4		18·5	68·5	19th	35·1	19th & 25th.	33·4
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	30·003	+·017	29·941	30·051	9th	29·932	4th	·122	76·6	81·8	−1·5	72·8	−1·8	77·3	−1·7	9·0	83·5	26th	69·0	21st	14·5
		Colombo	40	29·951	+·001	29·917	30·011	13th	29·854	2nd	·160	76·3	87·8	+0·3	70·6	−1·5	79·3	−0·6	17·2	92·0	26th	65·0	24th	27·0
												32·5			28·9	+6·7						4·0	28th	
	Persia	Meshed	3,104	*26·065			26·330	27th	25·800	11 h	·530	37·8	49·2	+6·9	31·9	+5·3	40·4	+6·1	17·7	64·5	6th	15·0	28th	49·5
		Teherat		†24·875			25·080	27th	24·700	17th, 19th & 24th.	·380													
		Ispahan		*24·341			24·625	3rd	24·100	17th & 24th.	·525	35·1	52·2	+5·7	28·4	+5·3	40·3	+5·5	23·8	65·3	11th	16·9	29th	48·4
		Bushire	14	30·146	+·012	30·119	30·318	27th	29·925	24th	·393	56·1	66·3	+2·2	53·1	+1·4	59·7	+1·8	13·2	77·6	11th	44·3	28th	33·3
		Bahrein**	30	30·195			30·405	28th	29·999	11th	·406	62·8	72·4		56·3		64·4		16·1	83·1	19th	49·8	28th & 29th.	33·3
		Jask††		30·111	−·017	30·081	30·196	28th	30·016	25th	·180	66·6	76·6	+3·0	62·6	+2·5	69·6	+2·8	14·0	80·8	24th	55·3	29th	25·5
		Muscat	20	30·120	−·001	30·088	30·234	3rd	29·976	24th	·258	70·2	73·2	+1·0	68·5	+1·3	70·9	+1·2	4·7	77·2	21st	65·2	30th	12·0
	Arabia	Baghdad¶	220	30·028		30·244	30·305	27th	29·630	18th	·615	41·6	62·0	+1·8	36·9	−1·2	49·5	+0·3	25·1	76·0	3rd	26·5	28th	49·5
		Bussrah		30·237			30·501	21st	29·926	18th	·575		60·9		46·6		53·8		14·3	80·1	10th	34·8	29th	45·3
		Aden	94	29·962	−·020	29·989	30·027	3rd	29·842	8th	·185	74·3	79·7	−0·9	72·3	−0·5	76·0	−0·7	7·4	82·3	20th	68·5	7th	13·8
		Perim	201	29·858	+·023	29·991	29·890	20th	29·795	17th	·101	76·3	83·0	+0·3	73·4	−0·1	78·2	+0·1	9·6	84·8	14th	72·2	5 days	12·6
												30·5	59·7	+14·7	25·5	+7·7	42·6	+11·2	34·2	70·2	20th	18·4	1st	51·8
	Afghanistan	Kabul										21·4	42·7	+10·3	18·0	+5·5	30·4	+7·9	24·7	50·5	16th	8·3	31st	42·2
	Central Asia	Kashgar	4,255	25·716			26·010	31st	25·450	14th	·560	83·9	87·1	+2·9	74·1	+0·2	80·6	+1·6	13·0	89·4	25th	67·8	27th	21·6
	Arabian Sea Islands.	Amini Devi	13	29·986	−·019	29·927	30·046	25th	29·800	7th	·146	79·6	85·1	−0·7						86·9	1st & 26th.			
		Minicoy	7	29·185		29·917	30·039	25th	29·887	5th	·152	81·0§	86·1§	9	79·3§	−0·3	82·7§	−0·2	6·8	87·7	15th	77·8	24th	9·9
	Africa	Zanzibar	73	25·915‡	+·008	29·919‡	29·966	18th	29·871	12th	·095	80·5	91·9§		71·1		81·5§		20·8	94·8	27th	66·6	25th	28·2
		Do. Dunga		29·848§			29·915	14th	29·791	21st	·124													

Note.—When a query is inserted against any reading or in the variation returns for any station, the data for that

* Aneroid uncorrected. † Mountain barometer uncorrected. ‡ Mean of 29 days. § Mean of 30 days.

I—*concluded.*

stations in India, Burma, etc., in January, 1902—concluded.

Wind Direction. Number of winds from: Calms	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind velocity. Mean velocity in miles per hour by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec. 1901 to 31st January 1902.	Normal rainfall for period, 1st Dec. to 31st January.	Variation from normal of period, 1st Dec. to 31st January.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
15	1	3		8	3			1	S 54° E	3·2	3·9	8·1	−52	37	·110	3·1	0	2·80	−2·80	0	3·67	−3·67	0	4·81	−4·81	0	Murree.	Punjab—*concld.*	30
26		1	2	1		1			S 72° E							2·0	1			0·19	3·20	−3·01	0·80	+·25	−3·45	0·11	Peo.		
7	8	3	2	4	2			3	N 34° E	6·5		2·0	+225	36	·095	2·3	0	3·60	−3·60	0·10	2·71	−2·61	1·19	3·94	−2·75	0·07	Simla.		
12	11	3						5	N 4° W	7·2		4·8	+50	45	·119	1·5	0	5·00	−5·00	0·07	3·73	−3·66	1·42	4·89	−3·47	0·07	Chakrata.	North-Western Provinces.	25
8		2	8	3			9	1	E					46	·130	1·6	0	4·20	−4·20	0·08	3·32	−3·24	2·18	4·73	−2·55	0·08	Mussooree.		
18	1	3	4		1	3	1		E	2·0	2·3	1·4	+64	57	·168	1·6	0	4·30	−4·30	0	2·79	−2·79	1·14	3·50	−2·36	0	Ranikhet.		
1	2	2	3	9	1	3		10	N 63° E	6·3	5·8			45	·123	1·5	0			0			1·17			0	Muktesar.		
																	1	2·50	−1·50	0·28	0·89	−0·61	0·28	1·07	−0·79	0·28	Yatung.	Bengal.	13
15		3	3	6		2	2		S 56° E	2·6	2·5	2·6	−4			2·3	0	1·71	−1·71	0	0·71	−0·71	0·13	0·94	−0·81	0	Darjeeling.		
25	2		3		1				N 72° E	2·0	2·4			72	·219	2·5	4			0·99	0·69	+0·30	2·62	1·23	+1·39	0·30	Gangtok.		
14	5	4	1		1	5	1		N 12° W	4·9	5·1	4·8	+6	34	·184	1·2	0	0·70	−0·70	0	0·33	−0·33	0	0·54	−0·54	0	Mount Abu.	Central India.	
19	1	1	1	1	2	1	2	3	N 80° W	3·0	3·1	3·1	0	59	·299	2·3	2	1·50	+0·50	0·54	0·65	−0·11	0·54	1·12	−0·58	0·39	Pachmarhi.		
14	4	6	4	1	2				N 58° E	3·0		2·4	+25	62	·275	2·5	5	1·70	+3·30	4·73	0·83	+3·90	6·92	4·74	+2·18	2·24	Wellington.	South India.	
	5	8	5	9	1			3	N 72° E	16·8				54	·212	0·9	6	1·40	+4·60	8·61	1·17	+7·44	13·06	6·74	+6·32	4·08	Kodai Kanal.		
9		3	7	2	2			1	S 86° E	5·7	5·6			53	·218	2·3	5	0·60	+4·40	1·53	0·35	+1·18	3·27	2·00	+1·27	0·70	Ootacamund.		
																											XIII.—Extra India.		
15		12				4			N 45° E	1·1				85	·792	3·1	9			11·12	5·38	+5·74	20·75	11·28	−0·53	3·58	Trincomalee	Ceylon.	
2	12	15	1	1					N 30° E	8·6		8·4	+2	79	·723	3·5	2			1·95	3·20	−1·25	3·65	9·99	−6·34	1·40	Colombo		
														75	·146	4·2	5			1·89	0·41	+1·48	2·17	1·11	+1·06	1·03	Meshed.	Persia.	
7	6	11	5			1	1		N 40° E	3·2	4·2			50	·127	2·9	5			2·14	1·29	+0·85	2·55	2·66	−0·11	0·70	Teheran.		
20						2	4	5	N 77° W	1·8	2·3			60	·122	2·1	3			0·67	0·26	+0·41	1·20	0·80	+0·40	0·24	Ispahan.		
2	6	11	5	4				3	N 46° E	8·7	10·4			74	·340	3·9	3			1·04	3·12	−2·08	2·53	6·36	−3·83	0·35	Bushire.		
	7	1		3	3	1	3	12	N 42° W	?				91	·532		0			0			0·58			0	Bahrein.		
	2	11	5	1		1		5	N 38° E	12·8	14·8			83	·555	1·6	0			0·05	0·87	−0·82	0·05	1·65	−1·60	0·05	Jask.		
		1		1		16		13	S 84° W	5·5	5·7			69	·515	0·5	0			0	1·28	−1·28	0·52	1·54	−1·02	0	Muscat		
18	1			2	2		3	2	S 72° W	2·2‖	2·9‖			70	·194	2·9	1			0·19	1·38	−1·19	0·39	3·02	−2·63	0·15	Baghdad.	Arabia.	
																	5			1·07			2·08			0·33	Bussrah		
6		17	7	1					N 60° E	13·7	13·4	12·0	+12	75	·627	4·5	0			0·04	0·32	−0·28	0·39	0·69	−0·30	0·04	Aden.		
	1	4	17	7			2		S 88° E	23·4	21·1			92	·839	2·6	0			0·12	0·34	−0·22	1·15	0·42	+1·03	0·09	Perim.		
		2	4	5	11	9			S 9° E					76	·130	3·6	0			0·04	1·24	−1·20	0·15	1·53	−1·38	0·04	Kabul.	Afghanistan.	
26	1		1		2		1		S	0·8	0·8					4·5	0			0·03	0·27	−0·24	0·03	0·46	−0·43	0·02	Kashgar.	Central Asia.	
	13	11	4	1				2	N 27° E	?				67	·780	2·6	3			0·61	0·19	+0·42	1·19	0·51	+0·68	0·24	Amini Devi.	Arabian Sea Islands.	
	7	13	7	4					N 56° E	5·4	5·8			77	·775	3·4	6			3·91	2·09	+1·82	4·50	6·75	−2·25	1·27	Minicoy.		
	16	14							N 21° E	9·5‡	8·9‡			82§	·866§	8·1§	1			0·22	3·37	−3·15	4·38	6·14	−1·76	0·10	Zanzibar.		
2		28						1	N 42° E	9·2	8·9			79	·829	6·3	1			0·23			6·64			0·12	Do. Dunga		

station are not utilized in calculating the provincial variations.

‖ Mean of 27 days. ¶ Observations of 28 days. ** Observations of 30 days. ††Observations of 25 days.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 65 Stations in India, Burma, etc., in January, 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. I. and for gravity 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Bay Islands.	Port Blair	61	29·943	29·834	·109	29·884	−·005	29·875	87·2	75·8†	11·4	89·4	69·4	20·0	82·8	84·8	80·6†	+1·1	71·4	75·1	75·6	74·0
	Rangoon	41							88·2	65·4	22·8	91·1	61·2	29·9	77·9	86·5	74·6	+0·6	63·6	69·3	70·0	67·6
	Diamond Island	41	·988	·871	·117	·926	−·029	·902	85·0	73·1	11·9	90·6	70·7	19·9	80·8	81·3	77·7	+1·8	67·6	72·1	72·2	70·6
	Cocos Island	119	·940	·845	·095	·889	?	·941	83·0	74·8	8·2	84·7	72·5	12·2	80·1	79·7	77·7	+2·8	68·7	71·7	71·8	70·7
	Akyab	20	30·029	·913	·116	·965	−·029	·928	82·4	60·9	21·5	85·2	57·3	27·9	72·4	78·3	71·1	+1·1	?	66·7	69·1	?
Bengal and Orissa.	Chittagong	87	29·977	·857	·120	·913	−·029	·951	79·5	55·7	23·8	84·4	51·1	33·3	71·1	77·0	67·4	+1·3	55·1	65·8	67·9	62·9
	Calcutta (Alipore)	21	30·073	·947	·126	·998	−·016	·965	79·7	56·1	23·6	86·2	49·5	36·7	71·5	78·4	66·9	+1·7	54·7	62·3	63·3	60·1
	Saugor Island	25	·071	·947	·124	·999	−·006	·969	78·9	59·5	19·4	85·3	53·9	31·4	72·3	75·8	68·1	+1·0	57·7	65·5	66·4	63·2
	False Point	21	·068	·959	·109	30·009	−·016	·971	79·6	58·1	21·5	85·4	51·2	34·2	75·2	77·2	67·9	+0·1	57·7	67·7	68·0	64·5
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	28·129	27·925	·104	27·969	−·009	·964	75·6	52·6	23·0	86·2	45·2	41·0	67·8	73·2	63·0	+2·1	48·2	55·0	56·6	53·3
	Darbhanga	166	29·924	29·792	·132	29·849	−·024	·975	76·6	51·5	25·1	81·7	43·8	37·9	67·1	74·9	63·4	+1·3	50·3	59·4	61·7	57·1
	Allahabad	309	·768	·647	·121	·695	−·034	·968	77·3	48·2	29·1	87·0	39·4	47·6	66·3	75·9	61·7	+1·1	46·9	57·4	60·6	55·0
Upper Sub-Himalayas.	Dehra Dun	2,233	27·799	27·699	·100	27·739	−·004	30·002	70·4	45·6	24·8	77·1	41·5	35·6	59·4	66·1	56·4	+1·6	41·8	50·3	53·2	48·4
	Roorkee	887	29·166	29·055	·111	29·100	−·014	29·991	73·6	41·7	31·9	79·2	34·4	44·8	59·9	70·6	56·4	+0·6	40·3	52·2	55·4	49·3
	Meerut	738	·318	·206	·112	·253	−·030	·990	74·4	43·9	30·5	81·5	35·3	46·2	59·0	71·0	57·8	+1·6	41·1	50·2	55·4	48·9
	Lahore	702	·365	·267	·098	·304	−·024	30·099	73·0	39·0	31·0	82·2	31·5	50·7	56·8	71·8	54·6	+2·6	36·2	48·1	55·5	46·6
	Ludhiana	812	·249	·150	·099	·188	−·014	·007	71·0	43·6	27·4	80·7	38·1	42·6	57·8	69·4	56·0	+3·2	46·8	48·9	53·7	47·8
Indus Valley and N.-W. Rajputana.	Peshawar	1,110	28·907	28·855	·112	28·899	−·045	·045	69·5	38·0	31·5	75·1	29·4	45·7	55·1	67·6	52·2	+2·7	34·1	45·8	50·8	43·6
	Jacobabad	186	29·915	29·794	·121	29·842	−·029	29·995	78·7	41·3	37·4	88·5	31·8	56·7	63·8	75·5	58·1	+1·5	37·1	50·5	56·1	47·9
	Kurrachee	30	30·091	·975	·116	30·021	−·007	30·005	81·0	55·1	25·9	89·5	46·4	43·1	71·0	77·1	66·8	+1·8	49·4	60·1	65·6	58·4
E. Rajputana, Central India, and Gujarat.	Jaipur	1,431	28·635	28·532	·103	28·572	−·008	29·996	79·2	48·0	31·2	89·4	37·9	51·5	69·2	76·9	61·7	+2·9	41·5	54·4	57·7	51·2
	Udaipur	1,925	·132	·012	·120	·072		·984	79·5	49·2	30·3	90·7	41·4	49·3	66·6	78·0	61·0		45·0	55·5	59·2	53·2
	Deesa	466	29·598	29·474	·124	29·524	−·012	·960	87·2	53·2	34·0	96·0	44·3	51·7	75·5	85·7	70·3	+2·7	43·9‡	57·3	60·6	54·1
	Jamnagar	61	30·035	·901	·134	·968		·974	82·4	54·6	27·8	89·0	41·2	47·8	72·4	80·7	68·0		50·4‡	58·9	61·8	57·2
Deccan.	Belgaum	2,539	27·470	27·353	·117	27·406	−·011	·816	85·4	58·6	26·8	89·3	53·9	35·4	77·0	83·9	71·6	+1·7	55·5	60·6	61·4	59·2
	Sholapur	1,530	28·438	28·298	·140	28·365	−·018	896	89·9	61·1	28·8	95·8	53·4	40·4	78·7	88·3	74·8	+2·8	52·0	62·6	64·4	59·7
	Akola	930	29·121	·977	·144	29·041	−·011	·929	89·7	55·4	34·3	94·4	47·4	47·0	77·0	88·2	71·5	+3·3	49·8	60·7	64·7	58·4
	Buldana	2,132	27·899	27·781	·118	27·832	−·007	·905	84·5	61·1	23·4	89·4	57·6	31·8	76·4	82·5	71·6	+3·1	51·6	58·5	60·0	56·7
	Khandwa	1,044	29·006	28·860	·146	28·925	−·008	·933	88·4	55·0	33·4	95·2	46·6	48·6	74·1	87·2	70·7	+3·8	49·0	61·2	66·6	58·9
	Nagpur	1,025	·024	·890	·134	·919	−·007	·039	87·3	58·0	29·3	93·9	50·4	43·5	74·2	85·3	71·4	+3·2	51·5	60·4	64·4	58·8
	Do. (Sanitary Commr.'s Office)	1,013	·049	·910	·139	·972		·952	87·3	56·7	31·1	94·6	51·3	43·3	75·1	86·4	71·9		51·9	60·4	63·9	58·7
	Hyderabad (Deccan)	1,690	28·350	·227	·123	·263	−·006	·920	86·7	59·7	27·0	92·2	56·3	35·9	76·6	84·3	72·6	+2·3	?	64·7	65·6	?
West Coast.	Bombay	37	29·959	29·843	·116	29·932	−·019	·910	84·9	69·8	15·1	89·6	65·3	24·3	76·5	81·0	76·0	+2·8	64·4	68·2	72·3	68·3
	Karwar	44	·978	·858	·120	·909	−·005	·884	87·2	68·0	19·2	90·7	63·6	27·1	79·9	85·3	76·7	+1·5	65·5	70·0	73·4	69·6

† Mean of 23 days.

‡ Mean of 30 days.

II.

65 stations in India, Burma, etc., in January, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	49	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·723†	·777	·771	·757	−·030	81†	69	64	71	− 5	4·3	4·3	4·3	+0·9	2	12	35	7	1			1	4	N. 36° E.	N. 41° E.	77	76	77	162	0	0	Port Blair .	Burma Coast and Bay Islands.
·566	·605	·511	·561	+·010	90	63	41	65	+ 1	3·1	5·2	4·2	+2·2																0	0	Rangoon .	
·600	·676	·672	·649	+·019	74	64	62	67	− 3	3·0	3·2	3·1	+0·8	3	9	18	3	1	1		7	20	N. 8° W.	N. 1° W.	55	71	118*	176	0·01	0·01	Diamond Island,	
·624	·673	·67	658	−·004	72	65	66	68	− 3	3·2	3·4	3·3	+1·3	1	7	23	8				7	16	N. 10° E.	N. 18° E.	56	86	114	291	0	0	Cocos Island	
?	·585	·588	?	?	?	73	61	?	?	0·1	0·1	0·1	−1·2			27	4				16	15	N. 7° W.	N. 19° W.	48	42	64*	67	0	0	Akyab .	
·429	·568	·568	·522	+·055	96	74	60	77	+ 4	0·2	0·3	0·3	−1·1		4	19	6	2		4	4	23	N. 4° W.	N. 26° W	48	47	67*	75	0	0	Chittagong .	Bengal and Orissa.
·316	·448	·383	·416	+·014	91	57	39	63	− 6	0·6	0·6	0·6	−0·7	3	16	4	1	1	4	9	7	17	N. 47° W.	N. 36° W.	46	39	75	62	0	0	Calcutta (Alipore),	
·463	·545	·529	·512	−·007	89	68	59	72	− 3	1·0	1·2	1·1	−0·5		25	8		1	8	10	6	4	N. 28° W.	N. 6° W.	32	20	185	166	0	0	Saugor Island,	
·476	·582	·568	·542	+·005	97	66	61	75	− 3	2·0	1·9	2·0	0		11	12	10	7	8	3	5	6	N. 54° E.	N. 57° E.	24	22	125*	147	0·03	0·03	False Point	
·286	·280	·256	·274	+·006	72	41	31	48	− 3	1·1	1·8	1·5	0·8	7	14	3	2		7	4	8	17	N. 46° W.	N. 53° W.	42	49	108*	135	0·30	0·30	Hazaribagh	Gangetic Plain and Chota Nagpur.
·354	·407	·378	·380	−·016	92	61	44	66	− 5	1·0	0·8	0·9	−0·5	37			2	2		3	11	7	N. 85° W.	S. 80° W.	24	46	28	63	0	0	Darbhanga	
·309	·360	·331	·333	−·006	90	56	38	61	− 5	1·7	2·5	2·1	0	3	6	6	13	2	2	2	15	13	N. 25° W.	N. 40° W	26	25	72*	81	0·53	0·39	Allahabad .	
·221	·254	·248	·241	−·033	72	50	39	54	−13	1·1	1·6	1·4	−2·8	43					3		16		S. 79° W.	S. 69° W.	26	18	6	40	0	0	Dehra Dun.	Upper Sub-Himalayas.
·233	·291	·240	·255	−·034	88	56	32	59	− 7	0·8	1·1	1·0	−2·4	34	2	3	1	9	2	1	2	8	N. 59° E.	N. 76° W.	2	19	27	51	0	0	Roorkee .	
·227	·252	·239	·239	−·051	78	49	31	53	−12	0·6	1·7	1·2	−2·0	30			2				28	2	N. 87° W.	N. 56° W.	43	42	26*	49	0	0	Meerut .	
·182	·227	·228	·212	−·060	75	49	29	51	−12	2·5	1·9	2·2	−1·4	18	3		2	4	6	1	18	10	N. 89° W.	N. 27° W.	34	20	30	43	0	0	Lahore .	
·220	·231	·210	·220	−·069	78	44	30	51	−18	1·2	1·8	1·5	−2·9	6	1	4		2	1	2	41	5	N. 85° W.	N. 51° W.	68	29	39*	35	0	0	Ludhiana .	
·153	·200	·171	·175	−·050	66	45	25	45	−17	2·2	2·4	2·3	−2·5	36	8	3	2	2	1	2	3	5	N. 14° W.	S. 2° W.	16	5	36*	64	0	0	Peshawar .	Indus Valley and N.-W. Rajputana.
·172	·185	·198	·188	−·041	65	33	22	40	− 9	2·6	2·1	2·4	−0·6	24	9	3	1	1	3	5		10	N. 36° W.	N. 4° W.	30	24	67*	51	0	0	Jacobabad .	
·387	·380	·489	·392	+·041	63	50	52	55	− 1	0·7	0·7	0·7	−1·9	5	4	10	7	3	5	13	11	4	S. 80° W.	N. 23° E.	22	23	151*	239	0	0	Kurrachee .	
·267	·247	·245	·226	−·048	55	35	27	39	−14	2·6	3·1	2·9	−0·3	1	6	13	3	2	4	6	13	14	N. 41° W.	N. 8° E.	34	18	63	83	0	0	Jaipur .	E. Rajputana, Central India and Gujarat.
·252	·272	·280	·268		72	37	28	46		1·3	1·3	1·3		19	2	8	15	5	2	4	3	4	N. 82° E.		26		47*		0·04	0·04	Udaipur .	
·172‡	·236	·204	·205	−·047	41‡	26	16	28	− 9	0·7	1·1	0·9	−1·3		12	19	8		1	5	12	5	N. 6° E.	N. 20° E.	40	38	155	208	0	0	Deesa .	
·316‡	·330	·310	·323		70‡	40	30	47		0·3	0·3	0·3			19	14	5	2		4	11	7	N. 5° W.		48		255*		0	0	Jamnagar .	
·408	·328	·268	·334	−·011	82	36	23	47	0	1·0	1·8	1·4	−0·1		4	12	21	13	3	4	3	2	S. 88° E.	S. 75° E.	51	43	231	249	0	0	Belgaum .	Deccan.
·282	·371	·310	·321	−·029	51	38	23	37	− 7	1·3	2·2	1·8	0	3	9	7	3	31	1	3	1	4	S. 71° E.	S. 59° E.	41	55	264*	184	0	0	Sholapur .	
·291	·319	·302	·304	−·025	64	35	23	41	− 7	1·6	2·0	1·8	+0·4	9	8	7	9	7	3	5	5	9	N. 27° E.	N. 50° E.	14	28	96*	88	0·16	0·10	Akola .	
·270	·272	·242	·262	−·048	51	31	22	35	− 9	0·9	1·0	1·0	−1·0	2	16	5	4	7	7	5	4	12	N. 16° W.	N. 75° E.	2	13	133*	132	0·32	0·32	Buldana .	
·279	·382	·392	·351	+·026	63	46	31	47	− 2	1·6	1·7	1·7	+0·2	2	4	7	13	8	6	3	10	9	N. 72° E.	N. 21° E.	8	21	103*	74	0·46	0·30	Khandwa .	
·308	·359	·347	·338	−·021	63	43	29	45	− 7	1·7	2·2	2·0	−0·1	17	3	7	12	7	3	6	1	6	E	N. 71° E.	20	30	63	93	0	0	Nagpur .	
·331	·348	·318	·332		71	40	26	46		1·5	1·9	1·7		16		18		17			11		N. 63° E.		31		23*		0	0	Do. (Sanitary Commr.'s Office).	
?	·466	·401	?	?	?	51	35	?	?	1·4	1·7	1·6	0	36		4	6	15	1				S. 64° E.	S. 51° E.	34	60	74*	90	0	0	Hyderabad (Deccan).	
·536	·585	·684	·602	+·025	73	63	64	67	− 2	0·4	0·5	0·5	−0·9		6	15	10	1			6	24	N. 3° W.	N. 6° E.	53	58	214	239	0	0	Bombay .	West Coast.
·593	·605	·663	·622	+·032	87	60	55	67	− 2	0·3	0·4	0·4	−0·3	3	13	13	2			1	19	11	N. 29° W.	N. 19° W.	54	53	84	73	0	0	Karwar .	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure.						Temperature of air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S.L. and for gravity 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	29·078	28·941	·137	29·013			85·3	62·2	23·1	91·1	55·1	36·0	77·4	83·1	73·1		60·2	68·0	68·7	65·4
	Salem	940	·107	·968	·139	·041	−·010	29·920	88·2	63·4	24·8	93·8	55·2	38·6	79·0	85·7	74·5	0	62·1	70·7	72·9	68·6
	Chitaldroog	2,405	27·616	27·499	·117	27·554	+·002	·870	85·6	62·1	23·5	88·3	55·6	32·7	77·7	83·1	73·2	+1·2	56·6	64·0	64·0	61·5
	Bangalore	3,021	·037	26·922	·115	26·979	−·009	·895	81·3	57·4	23·9	85·9	51·7	34·2	73·2	78·7	68·7	+1·1	55·4	61·1	60·9	59·1
	Hassan	3,091	26·962	·852	·110	·906	+·007	·883	80·2	54·1	26·1	83·7	48·7	35·0	73·5	79·6	67·0	−0·8	52·5	60·7	60·3	57·8
	Mysore	2,518	27·521	27·395	·126	27·458	+·003	·890	83·5	59·0	24·5	88·1	54·6	33·5	74·6	81·7	70·8	−0·5	57·1	62·8	63·0	61·0
	Madras	22	30·043	29·9..9	·119	29·983	−·005	·936	83·9	67·6	16·3	85·3	62·8	22·5	79·5	80·6	75·3	−0·2		72·1	72·1	70·8
	Bellary	1,475	28·557	28·421	·136	28·485	−·016	·901	90·3	62·1	28·2	95·0	56·1	38·9	79·5	86·7	75·0	+1·8	56·5	63·8	65·4	61·9
	Waltair	226	29·854	·738	·116	·796		·967	81·2	67·7	13·5	83·8	63·9	19·9	78·1	78·2	73·7		61·4	68·3	69·5	66·4
Hill Station, Baluchistan.	Quetta	5,502	24·758	24·671	·087	24·706	+·051		59·1	27·8	31·3	76·8	11·8	65·0	47·9	55·1	42·5	+2·9	25·9	38·2	42·9	35·7
Hill Stations, Northern India.	Leh	11,503	19·771	19·667	·104	19·720	+·095		34·1	10·9	23·2	44·5	2·5	42·0	23·3	31·0	21·5	+3·0	9·6	13·0	17·8	13·5
	Srinagar	5,204	25·038	24·928	·110	24·973	+·016		52·9	23·1	29·8	63·1	14·9	48·2	36·8	51·0	37·5	+4·5	22·0	35·0	48·9	35·3
	Kailang	10,087	21·015	20·903	·112	20·958	?		45·8	17·5	28·3	54·2	7·0	47·2	28·8	36·0	28·0	+6·6	16·5	22·3	27·4	22·1
	Simla (Ridge)	7,224	23·182	23·116	·066	23·139	+·036		50·6	40·0	10·6	57·5	31·2	26·3	47·1	47·6	44·1	+3·5	32·0	35·8	38·2	35·4
	Chakrata	7,022	·342†	·278	·064	·299†	+·008		56·7	39·7	17·0	67·7	32·4	35·3	50·5†	49·7	46·0	+4·4	33·1	40·2†	40·4	37·9
	Ranikhet	6,069	24·180	24·099	·081	24·125	+·014		56·6	42·0	14·6	63·2	33·7	29·5	50·3	52·8	47·8	+1·8	37·2	43·5	44·5	41·7
	Muktesar	7,100	22·902	22·836	·066	22·869			54·6	37·5	17·1	61·7	30·4	31·3	49·0	49·7	44·8		31·8	38·8	40·3	37·0
	Katmandu	4,388	25·702	25·565	·137	25·628	?		66·9	35·9	31·0	71·9	28·6	43·3	52·9	62·3	50·2	0	34·6	46·7	50·4	43·9
	Darjeeling	7,376	23·047	22·983	·064	23·009	+·018															
Hill Stations, Central India.	Mount Abu	3,945	26·164	26·083	·081	26·111	−·010		69·5	54·5	15·0	77·6	45·6	32·0	65·9	66·9	61·3	+3·7	44·0	49·7	51·0	48·2
	Pachmarhi	3,528	·575	·483	·092	·522	−·001		71·2	50·1	24·1	78·3	44·1	34·2	68·6	72·7	60·1	+2·1	46·4	54·2	56·4	52·3
	Chikalda	3,642	·153	·358	·095	·397	−·014		76·6	58·7	17·9	81·2	52·5	28·7	69·2	74·1	65·3	+2·9	50·1	54·9	57·6	54·2
Hill Stations, S. India.	Wellington	6,200	24·307	24·234	·073	24·271	+·001		66·9	44·7	22·2	71·9	34·9	37·0	62·9	63·3	54·9	−0·3	42·1	51·6	54·8	49·5
	Kodaikanal	7,688	22·869	22·799	·070	22·828			60·3	45·6	14·7	68·5	39·4	29·1	56·4	56·2	51·6		39·9	46·9	49·6	45·1
	Ootacamund		23·104	23·032	·072	23·068			62·6	44·0	18·6	68·3	35·1	33·2	58·8	58·9	52·4		39·2	47·9	49·7	45·6
Extra India.	Aden	94	30·020	29·892	·128	29·948	+·021	·975	79·7	72·2	7·5	82·1	68·5	13·6	77·0	78·6	75·9	−0·1	67·3	70·0	69·4	68·9
	Perim	201	29·857	·743	·114	·792	+·026	·9 9	83·0	73·4	9·6	84·5	72·2	12·3	79·4	80·2	77·5	+0·1	71·5	76·7	77·2	75·1
	Minicoy	7	·998†	·912†	·086	·951		·883†	85·1			86·9			82·8	82·4				75·0	74·6	
	Zanzibar	73	·910†	·787	·123	·849	+·011	·848†	86·2	79·4	6·8	87·9	77·8	10·1	82·5‡	85·7	82·7	+0·3	73·9	77·0†	77·2	76·0
	Port Victoria (Seychelles)	15	·970	·885	·085	·928	+·003	·867	81·9	74·3	7·6	83·9	72·4	11·5	80·7	81·0	77·9	−1·8	73·0	75·4	75·6	74·7
	Mauritius (Pamplemousses)	181				·784	+·012	·910				90·9	62·5	28·4			78·4	−0·4				

† Mean of 30 days.

‡ Mean of 292 days.

II.—*concluded.*

65 stations in India, Burma, etc., in January, 1902—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
														Number of winds from																	
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·503	·563	·512	·527		88	60	47	64		3·1	4·8	4·0		9	1	1	22	7	2	7	9	1	S. 53° E.		82		47*		2·63	1·24	Periyakulam**	South India.
·548	·618	·645	·614	+·050	93	65	53	70	+ 5	3·1	3·4	3·3	+0·5	16		4	40	1			1		N. 87° E.	N. 82° E.	69	62	71*	117	0·50	0·39	Salem	
·396	·429	·364	·396	+·042	71	46	33	50	+ 4	1·4	1·4	1·4	−0·4	3	1	15	30	11			1	1	N. 84° E.	S. 88° E.	76	74	156*	175	0·01	0·01	Chitaldroog	
·421	·401	·330	·384	−·021	88	50	35	58	− 3	1·7	1·9	1·8	−0·7		2	15	36	7	1	1			N. 83° E.	N. 86° E.	84	72	197*	111	0·03	0·03	Bangalore	
·385	·389	·305	·360	−·025	90	47	31	56	− 1	2·4	2·6	2·5	−0·6			21	26	14	1				N. 86° E.	N. 87° E.	82	74	70*	75	0	0	Hassan	
·448	·428	·349	·408	−·039	88	50	33	57	− 3	2·5	2·4	2·5	−0·3		2	14	25	18	2	1			S. 86° E.	N. 82° E.	76	83	217*	213	0·10	0·10	Mysore	
	·690	·675	·696	+·042		68	65	79	+ 4	3·9	2·6	3·3	−0·7		6	26	24	6					N. 67° E.	N. 49° E.	82	78	151	111	1·24	1·24	Madras	
·398	·397	·361	·385	−·041	70	40	29	46	− 6	2·9	3·0	3·0	+0·8	5	1	3	30	16	6	1			S. 71° E.	S. 68° E.	70	61	92*	81	0	0	Bellary	
·466	·564	·608	·546		69	59	63	64		2·2	1·7	2·0				21	15	7	3	16			S. 79° E.		39		115		0	0	Waltair	
·127	·140	·155	·141	−·017	86	44	37	56	−11	2·0	2·8	2·4	−1·7	31	1			1	4	6	10	9	S. 85° W.	N. 85° W.	32	25	47*	74	0·07	0·07	Quetta	Hill Station, Baluchistan.
·062	·023	·022	·036	−·036	82	15	12	36	−31	4·5	5·1	4·8	−1·8			1	2	4	35	19	1		S. 10° W.	S. 10° W.	82	29	43	22	0·01	0·01	Leh	Hill Stations, Northern India.
·112	·190	·327	·210	+·056	86	84	86	85	+ 3	3·4	3·1	3·3	−4·6	13	7	3	1	13	2	4	7	12	N. 61° W.	S. 37° E.	11	10	82*	71	0	0	Srinagar	
·089	·073	·084	·082	−·006	86	45	41	58	−13	4·6	4·7	4·7	−2·0		2		1	6	12	20	14	7	S. 50° W.	S. 66° W.	58	52	12	20	0·31	0·47	Kailang	
·105	·103	·135	·114	−·033	43	32	42	39	−19	2·1	2·9	2·5	−3·1	13	7			11	19	1		8	S. 5° E.	S. 7° E.	24	31	156	128	0·10	0·07	Simla(Ridge)**	
·126	·145†	·159	·143	−·013	52	41†	46	46	−16	1·8†	3·0	2·4	−2·2	8	4			16	29	1		2	S. 14° E.	S. 81° W.	62	5	173	123	0·07	0·07	Chakrata	
·176	·208	·210	·198	+·005	67	58	53	59	− 4	1·5	2·9	2·2	−1·9	23	4	4	5	2		9	9	6	N. 72° W.	S. 51° W.	18	15	56*	44	0	0	Ranikhet	
·124	·133	·156	·138		56	39	44	46		1·2	2·1	1·7		2	1	2		29		10	4	14	S. 4° E.		24		139*		0	0	Muktesar	
·189	·253	·233	·225	−·021	87	62	41	63	−10	1·5	2·5	2·0	−1·3	7		1	3	7	1	5	35	3	S. 78° W.	N. 76° W.	53	49	10	21	0	0	Katmandu	
										3·4	5·1	4·3	−1·4	5		8	5	16	5	9	11	3	S. 10° E.	S. 89° W.	24	22	60*	88	0	0	Darjeeling	Hill Stations, Northern India.
·168	·176	·197	·180	−·027	41	27	29	32	−11	1·1	1·5	1·3	−1·1	2	7	8	5	5	6	14	9	6	S. 78° W.	N. 69° W.	19	11	123*	119	0	0	Mount Abu	Hill Stations, Central India.
·278	·258	·269	·268	−·016	76	38	34	49	− 6	2·1	2·3	2·2	−0·1	18	8	3	2	4	2	5	9	11	N. 55° W.	N. 79° W.	26	10	75*	78	0·51	0·39	Pachmarhi	
·265	·271	·287	·274	−·035	54	39	35	42	−10	1·2	1·5	1·4	−0·8	38	14	3		1			6		N. 4° W.	S. 40° W.	32	24	?	123	0·30	0·24	Chikalda	
·250	·270	·346	·289	−·013	82	49	60	64	− 4	2·3	2·8	2·6	−0·6	2	11	9	5	26	8			1	S. 71° E.	S. 27° E.	48	65	69	52	4·73	2·24	Wellington	Hill Stations, S. India.
·197	·235	·292	·241		62	51	66	53		0·9	2·4	1·7			3	11	7	9	2			9	N. 59° E.		27		402		8·61	4·08	Kodaikanal††	
·200	·227	·265	·231		67	48	54	56		2·3	2·3	2·6		15	4	9	10	4	1	1		2	N. 68° E.		41		133 ¶		1·53	0·70	Ootacamund	
·607	·640	·598	·615	−·025	76	69	61	69	− 3	4·6	1·6	3·1	−0·7	2		24	16	18	2				N. 87° E.	N. 89° E.	74	70	332*	319	0·04	0·04	Aden	Extra India.
·748	·888	·898	·845	+·183	91	88	87	89	+19	1·2	0·3	0·8	−1·6		1	1	21	32	1	1	3	2	S. 62° E.	S. 63° E.	72	78	505*	472	0·12	0·09	Perim	
	·767	·758				68	69			3·5	4·1	3·8			16	25	12	9					N. 53° E.		72		143*		3·91	1·27	Minicoy	
·765	·857†	·818	·813	−·037	76	77	66	73	− 4	6·9†	3·9	5·4	+1·0		25	24	10	2					N. 35° E.	N. 35° E.	81	69	211*	196	0·22	0·10	Zanzibar	
·798	·813	·815	·809	−·011	94	78	77	83	+ 3	6·8	7·2	7·0	0	3	14	5				1	7	32	N. 34° W.	N. 43° W.	77	66	179	144	15·64	4·05	Port Victoria (Seychelles).	
			·694	−·046				72	− 2																		264	269	2·20	0·51	Mauritius (Pamplemouses)	

¶ Mean of 23 days. ** Wind variable 3. †† Wind variable 21. * Corrected.

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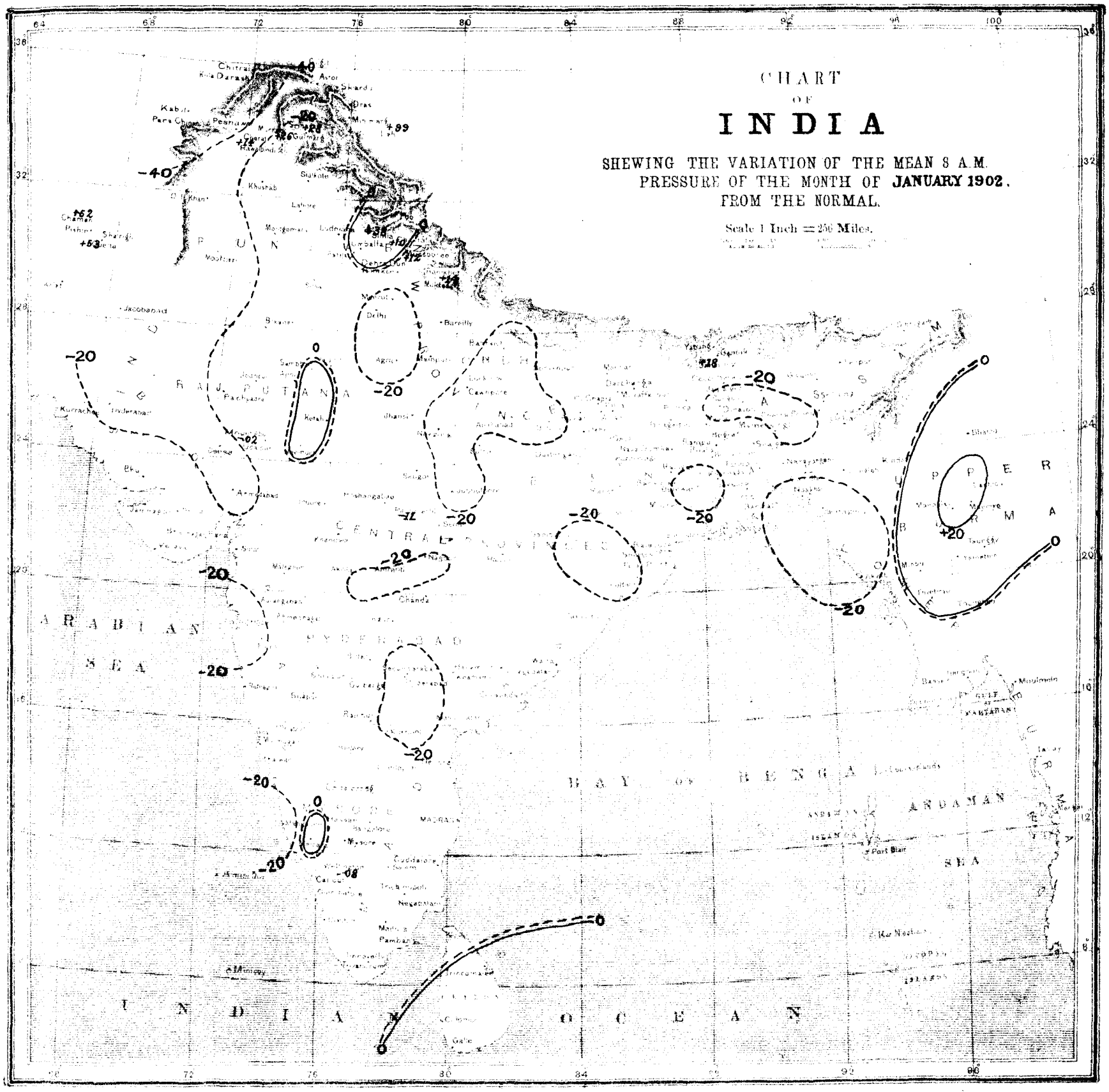
Explanation.

The lines of the above Chart represent isobars or lines of equal barometric pressure, and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of ·05 inch. The isobars in the Bay of Bengal are filled in by means of the shore observations, and by comparison with the ordinary or normal distribution of pressure as given in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant Meteorological Reporter to the Government of India, and published by the Meteorological Department. Hence they have not the same validity as the isobars in the land area of India itself, but it is probable they deviate very little from the actual.

The mean 8 a.m. wind directions of the month are shewn by means of arrows flying with the wind, and are calculated by means of Lambert's formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0 to 2	miles	per	hour	...	one	feather	added	to	the	wind	arrow
„ „	2 to 5	„	„	„	...	two	feathers	„	„	„	„	
„ „	5 to 10	„	„	„	...	three	„	„	„	„	„	
„ „	10 to 20	„	„	„	...	four	„	„	„	„	„	
	over 20	„	„	„	...	five	„	„	„	„	„	



Explanation.

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other, one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

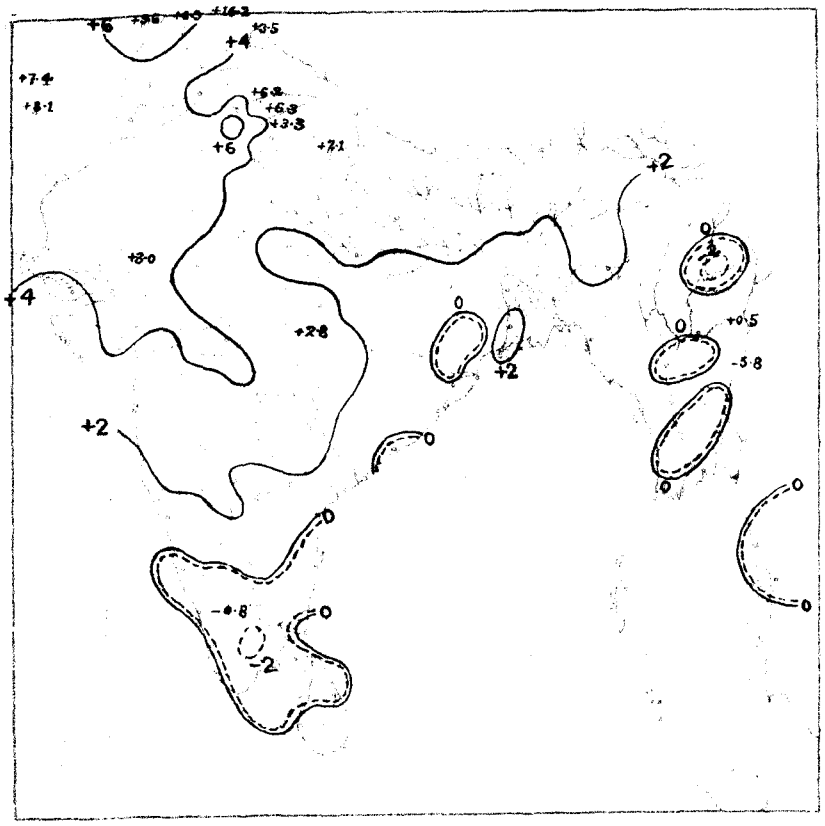
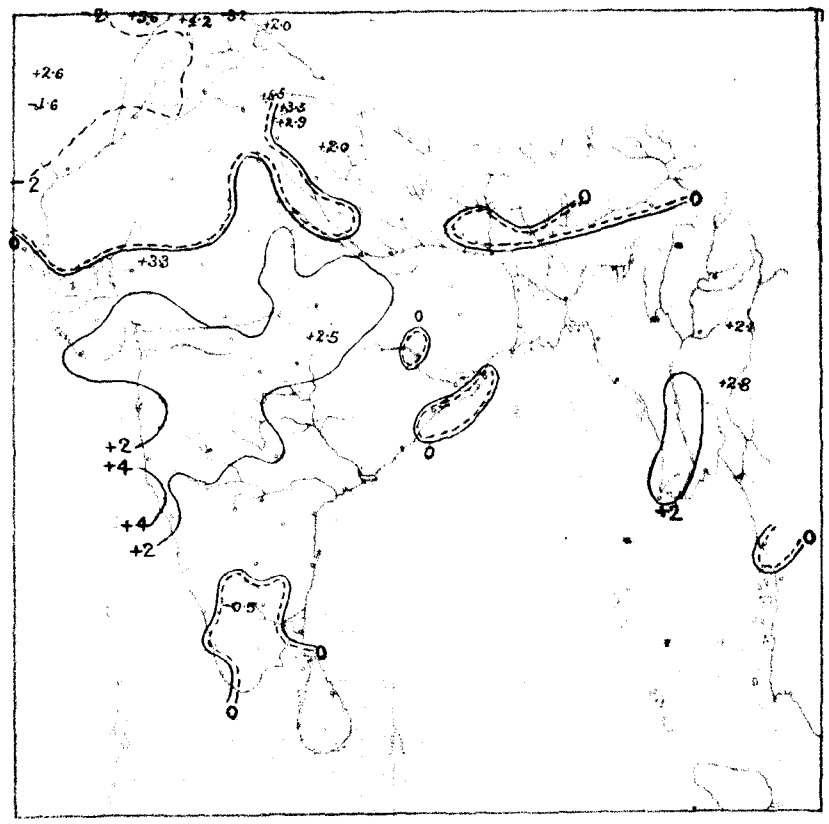


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous lines indicate that the mean maximum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

Continuous lines indicate that the mean minimum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

CHART SHEWING THE VARIATION OF THE MEAN DAILY TEMPERATURE OF THE MONTH FROM THE NORMAL.

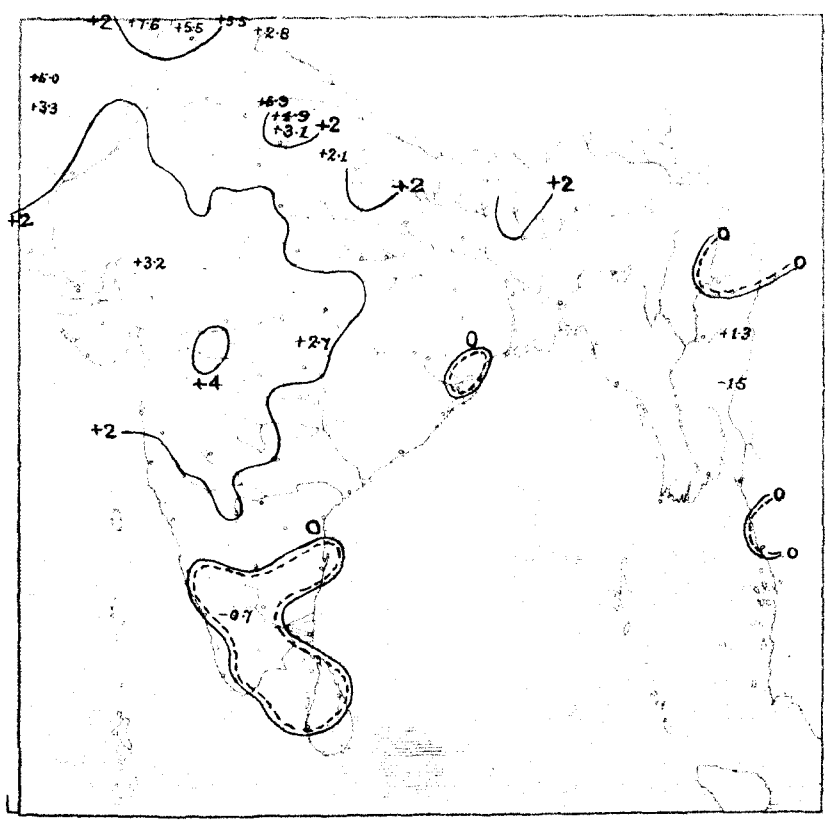
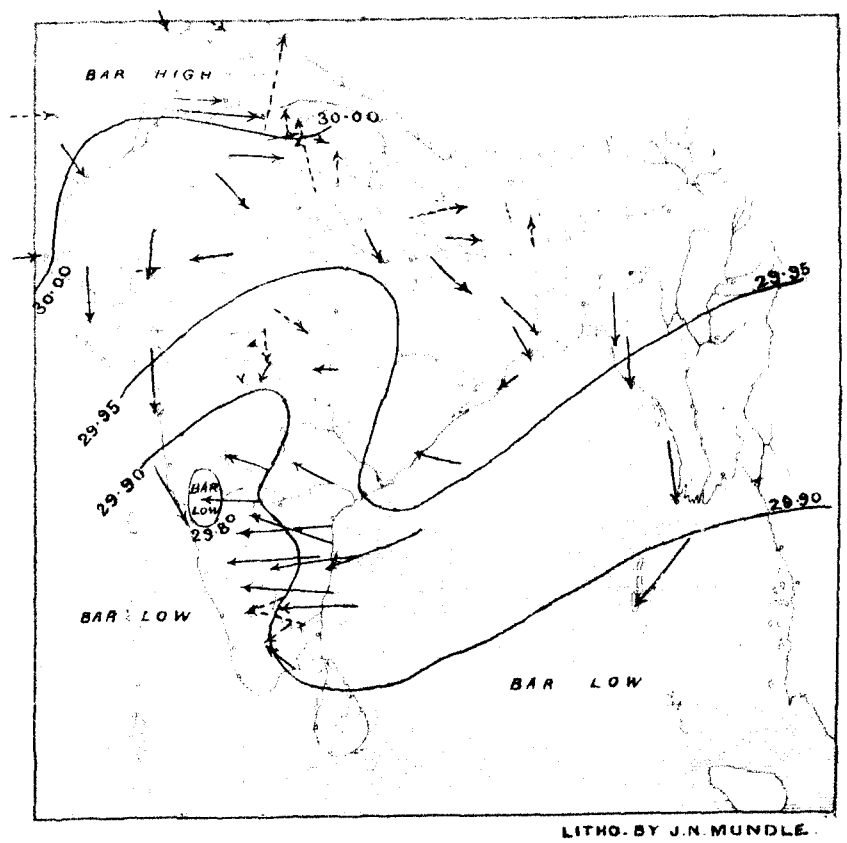


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JANUARY 1902.

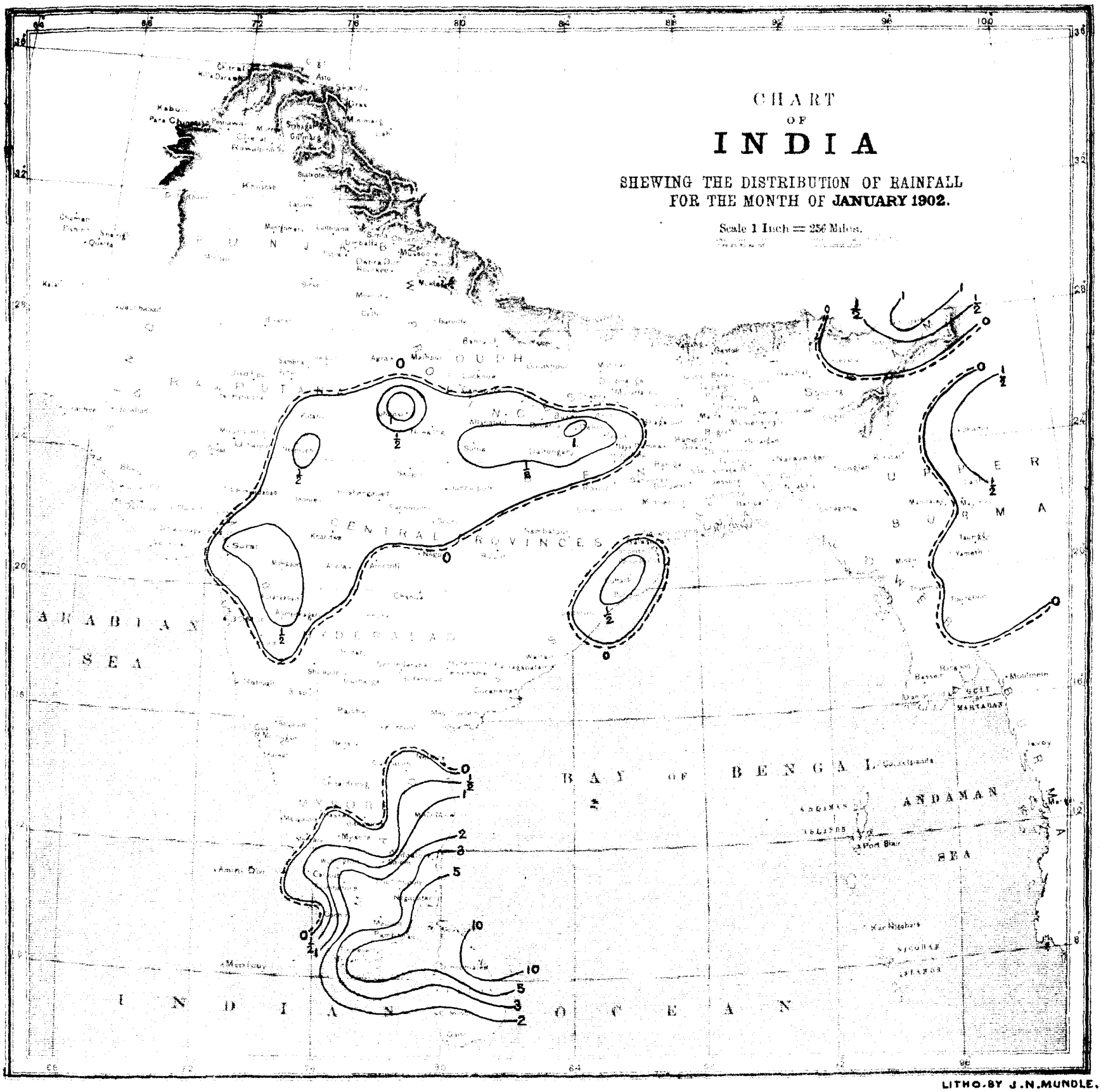


LITHO. BY J.N. MUNDLE.

Explanation.

Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{3}{8}$th of an inch being equal to 100 per cent.



Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India (182 in number), except those at the Hill Stations over 3,500 feet in Elevation. The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.

Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable and useful means. The country is divided into 57 areas, over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both actual and normal for the month) have been calculated, and the numbers given in the centre of each division (usually with a + or − sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The normal average rainfall is also given below in smaller figures enclosed within brackets so that the percentage variation can be at once estimated. The name of the district can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim	17. North Bihar	33. Malabar	48. Baluchistan Hills
2. Lower Burma Deltaic	18. North Western Provinces, East	33a Travancore	49. Central India, East
3. Central do.	19. South Oudh	34. Madras, South Central	49a Do. do.
4. Upper do.	20. North do.	35. Coorg	50. Rajputana East, Central India West
5. Arakan	21. North Western Provinces, Central	36. Mysore	51. West Rajputana
6. East Bengal	22. Do. do., West	37. Konkan	52. Madras, East Coast, North
7. Assam, Surma	23. Do. do., East Submontane	38. Bombay Deccan	52(a). Do. do. do. (a)
8. Do., Hills	24. Do. do., West do.	39. Hyderabad, North	53. Hyderabad, South
9. Do., Brahmaputra	25. Do. do., Hills	40. Khandesh	54. Madras, Central
10. Deltaic Bengal	26. South East Punjab	41. Berar	55. Madras, East Coast, Central
11. Central do.	27. South do.	42. Central Provinces, West	56. Do. East Coast, South
12. North do.	28. Central do.	43. Do., Central	57. Madras, South
13. Bengal Hills	29. Punjab, Submontane	44. Do., East	
14. Orissa	30. Do., Hills	45. Gujarat	
15. Chota Nagpur	31. North Punjab	46. Kathiawar	
16. South Bihar	32. West do.	47. Sind	

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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

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CALCUTTA, FEBRUARY, 1902.

INTRODUCTION.

THIS review of the weather in India during the month of February 1902 is based on observations taken daily at 8 A.M. at 226 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 65 stations. In the rainfall summary the rainfall data of the meteorological observatories and the rainfall statements of the month published by the Provincial Governments that had been received up to the date of the preparation of the review, are utilized. A summary of the weather in the Bay of Bengal and the Arabian Sea, derived from information extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given.

Summary of the chief features of the weather in India during the month of February, 1902.

The meteorology of the month of February 1902 has been characterized by most abnormal features or variations —more especially by a very large persistent excess of pressure, by an almost equally persistent excess of temperature over the whole of India and by great dryness of the air, absence of cloud and deficient rainfall.

An examination of the available data shows that these features are common to a very much larger area than India, and that they are due to conditions and actions affecting a considerable part of the Eastern Hemisphere.

The following data show that the excess of pressure extends over a very large area including Asiatic Turkey, Persia, Arabia, East Africa and the Indian Ocean :—

Station.	Variation from normal of mean 8 A.M. pressure of February 1902.
	"
Teheran	+ ·115
Baghdad	+ ·108
Bushire	+ ·098
Aden	+ ·074
Zanzibar	+ ·063

STATION.	Variation from normal of mean 8 A.M. pressure of February 1902.
	"
Seychelles	+·053
Amini Divi	+·077
Colombo	+·066
Singapore	+·050
Mergui	+·105
Bhamo	+·111
Sibsagar	+·104
Madras	+·083
Bombay	+·065
Nagpur	+·096
Calcutta	+·099
Lahore	+·092
Leh	+·157
Kashgar	+·119
Quetta	+·127

The data indicate that there was a large general excess over the whole area which was even greater in the outskirts of the area in Burma, Assam, Persia and Asiatic Turkey and at Kashgar in Central Asia than in India itself, and also that it was considerably greater in amount at the most elevated stations. This is confirmed by the results of observations at Dras, Astor, Minimarg, Skardu, Gilgit, etc.

The excess of pressure in the Indian area averaged ·088″ and is the largest recorded in India.

The following gives the mean positive variations exceeding ·050″ recorded in previous years and the date of their occurrence :—

	"
January 1877	+·073
February 1877	+·051
April 1877	+·066
May 1899	+·051

The period from December 1876 to July 1877 was marked by persistent excess of pressure which was greatest in actual amount in the month of January. During the greater part of the period it was associated with (1) a much smaller excess of pressure at the hill stations than at the plains stations, and (2) a marked and persistent decrease or reduction of temperature below the normal.

In February 1902 the accompanying temperature conditions were the opposite of those which obtained in 1877, and also the opposite of those which usually obtain in India in periods of increased or higher pressure than usual.

The following gives temperature variation data for the same stations as in the preceding table of pressure variations :—

STATION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, February 1902.	Mean minimum temperature, February 1902.	Mean temperature, February 1902.
	°	°	°
Ispahan	+3·5	+2·2	+2·9
Teheran	+1·5	+0·8	+1·2
Baghdad	+8·5	+7·6	+8·1
Bushire	+3·4	+2·2	+2·8
Aden	—1·7	0	—0·9
Zanzibar	—1·1	—1·5	—1·3
Mauritius	...	...	+0·3
Seychelles	...	...	—1·4
Amini Divi	+2·4	—0·4	+1·0
Colombo	+1·2	—0·3	+0·5
Singapore	—2·5	—1·1	—1·8
Mergui	—0·9	+0·1	—0·4
Bhamo	?	—1·5	?
Sibsagar	+1·0	—0·8	+0·1
Madras	—0·6	—0·7	—0·7
Bombay	+2·4	+1·4	+1·9
Nagpur	+1·4	—0·3	+0·6
Calcutta	+2·3	—1·9	+0·2
Lahore	+7·3	+1·2	+4·3
Peshawar	+8·5	+1·7	+5·1
Leh	+7·3	+5·1	+6·2
Kashgar	—0·4	—5·3	—2·9
Quetta	+8·5	—1·9	+3·3

The mean temperature was in very large excess at Baghdad and in moderate to large excess in Persia, Afghanistan, Baluchistan and North-Western India, more especially at the hill stations and varied slightly from the normal over North-Eastern India and the Peninsula (generally in slight excess) and in the sea areas to the south (where it was generally in slight defect).

Persistent increased temperature in India is usually associated with decreased pressure. The decrease also diminishes in amount with elevation and may at a considerable elevation be changed into an increase. These inferences of experience are in accordance with theory and obtain so long as there are no larger and more general actions which give rise to pressure effects that obscure the effects due to the local temperature variations.

If allowance be made for the deficiency of pressure due to increased temperature, it is almost certain that there was an abnormal excess of pressure varying from

an average of a tenth to an eighth of an inch over a very large area, including the whole Indian monsoon region during the month due to general actions of some kind over the greater part of the Eastern Hemisphere.

It is not possible in the absence of information from Central Asia, China and the Russian Empire to determine *the whole extent* of the area in which this remarkable excess of pressure obtained—an excess equivalent to an additional pressure of at least 7 lb per square foot of surface exposed to the air. An examination of the English and Russian charts shows that there was a large excess of pressure during nearly the whole month over East and South Russia. These anti-cyclonic conditions were most marked from the 1st to the 8th and from the 15th to nearly the end of the month. Pressure ranged between 30·7″ and 30·4″ during the latter period and was from two to six-tenths of an inch above the normal in that area and actually occasionally higher than the mean pressure in the Central Asian winter anti-cyclone (the normal position of which is in Central Asia, south of Lake Baikal). It is hence possible that due to abnormal air movements the anti-cyclone may have been largely displaced westwards and may have also been more extensive and pronounced than usual. These conditions would undoubtedly give rise to an outflow of dry air from South-East Russia across the Persian region into North-Western India, the temperature of which would depend upon the extension of the snow clad surface in Russia. The extent of this surface, however, under the actual pressure conditions would be much less than usual.

The preceding remarks have hence indicated that there were in operation during the greater part of the month abnormal pressure conditions and air movements over a very large area including at least Southern and Central Asia and South-East Europe and that these abnormal features and actions determined the strongly developed anti-cyclonic conditions of increased pressure, great dryness of the air and noteworthy absence of cloud in the Indian monsoon area and also, as a further consequence of these anti-cyclonic conditions, absence of cold weather storms, such as usually give more or less general rain in the Persian area and North-Western India on, as a rule, two or three occasions in the month of February.

The following is a statement of the more important features of the meteorology of India during the month :—

The month may be divided into four periods, *viz.*, the 1st to the 8th, the 9th to the 14th, the 15th to the 21st and the 22nd to the 28th.

First period, from the 1st to the 8th.—The chief features of this period were due to the march, across Northern India, of a cool wave in the rear of a warm wave followed by the appearance of a second warm wave in the Frontier districts.

At the commencement of the month a feeble depression, which had advanced from the Persian area across Northern India during the previous four days, was filling up in Bengal. High pressure conditions obtained over North-Western India and the whole Persian area and were most marked from the 4th to the 8th when pressure was about three-tenths of an inch above the normal at Baghdad, Bushire and Leh.

The warm wave in front of the depression on the 1st lay over Bengal and Upper Burma and the cool wave in its rear in North-Western India. A rapid increase of pressure accompanied the filling up of the depression in Bengal on the 2nd and from that date to the end of the month pressure was more or less above the normal.

Fine, bright, dry weather with clear skies and strong north-westerly and westerly winds obtained in Northern and Central India from the 2nd to the 7th. The warm wave in West Bengal on the 1st passed into East Bengal on the 2nd and Upper Burma on the 3rd. The cool wave in its rear gave the greatest reduction of temperature in Baluchistan on the 1st, Sind and North Rajputana on the 2nd, Central India on the 3rd and North-Eastern India on the 4th, 5th and 6th. The second warm wave was in Baluchistan on the 3rd and the Frontier districts on the 4th and 5th. The following mean temperature data for six stations will illustrate the changes accompanying the advance of these three waves :—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	1st February.	2nd February.	3rd February.	4th February.	5th February.	6th February.	7th February.
	°	°	°	°	°	°	°
Quetta	−4·7	−5·9	−0·1	+2·9	−2·2	−2·0	−3·2
Lahore	−2·0	−0·8	+0·2	+3·6	+1·7	+2·1	+2·0
Jaipur	−3·9	−4·1	−4·4	−0·3	+0·8	+0·1	−3·1
Allahabad	−1·7	−3·3	−2·2	−1·9	−1·1	−1·0	−1·7
Patna	+3·2	−0·6	+0·3	−1·1	−0·6	+2·8	0
Calcutta	+5·5	+2·6	−0·6	−4·9	−4·2	−0·4	−0·4

The air was exceedingly dry over the whole of the interior of India and more especially in North-Western and Central India. The following gives examples of the very low relative humidities recorded during this period :—

Station.	Date.	Hour.	Lowest humidity recorded during the period.
Mount Abu	2nd February	4P.M.	14
Pachmarhi	4th "	"	12
Nagpur	4th "	"	13
Sholapur	4th "	"	14
Jamnagar	1st "	"	5
Do.	3rd "	"	1
Deesa	1st "	"	6
Do.	3rd "	"	9
Jaipur	6th "	"	16
Jacobabad	1st "	"	10
Peshawar	6th "	"	11
Hazaribagh	3rd "	"	8
Simla	4th "	"	23
Quetta	7th "	"	17

In consequence of the great dryness of the air, the ground surface and lower air strata cooled very rapidly at night during this period and the lowest night temperatures of the month were generally recorded during the period. The more important will be found in the section "Temperature".

The following, however, show the very low night temperatures recorded in the region to the north and west of Upper India:—

STATION.	Lowest minimum temperature recorded in February 1902.	Date on which recorded.
	°	
Kashgar	— 4·2	5th
Meshed	12·6	1st
Teheran	20·0	2nd
Ispahan	19·1	5th
Kabul	18·8	7th
Kalat	5·4	2nd
Quetta	16·8	2nd
Dras	—25·9	3rd
Leh	5·0	8th
Minimarg	— 6·0	8th

The high temperature conditions which extended into North-Western India from Baluchistan on the 5th and 6th, gave way on the 7th and 8th, apparently in consequence of the advance across Baluchistan of a feeble cool wave, with the result that on the 9th temperature was below the normal to a moderate or considerable extent over the whole of Northern and Central India and Burma and was normal in the Peninsula.

Second period, from the 9th to the 14th.—The chief feature of this period was the sudden appearance of a central area of high temperature in North Bombay (*i.e.*, Kathiawar and Gujarat), on the 9th and its extension northwards and eastwards.

The following data show the character of the temperature change in North Bombay:—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	7th February.	8th February.	9th February.	10th February.	11th February.
	°	°	°	°	°
Veraval	—3·8	—0·8	+6·3	+2·8	+1·0
Bhuj	—0·7	—3·9	—1·1	+2·2	+3·8
Rajkot	—5·9	—0·5	+0·1	+6·7	+4·5
Deesa	—0·4	—0·8	—0·8	+3·1	+4·9
Ahmedabad	+0·1?	—2·5	+0·6	+4·7	+5·4
Surat	—0·3	+2·3?	+3·4	+7·5	+7·9

A local fall of pressure occurred on the 8th and 9th over this area of rapid increase of temperature, but, so far as is indicated by the 8 A.M. observations, fine weather with clear skies held steadily throughout the period in that area.

The only change which appears to explain the large increase of temperature was the shift of winds at the coast stations from north and north-east to west and south-west directions, thus increasing the absolute and relative humidities. It is noteworthy that although the change was markedly shown at Mount Abu and the coast stations of Dwarka, Veraval and Surat, it was not exhibited at Deesa or Ahmedabad. It may be noted that during the period from the 8th to the 13th or 14th pressure had given way rapidly in Southern Europe, more especially South Russia and hence the influx from the north-west across the Persian area had diminished very largely. The pressure changes in India were small in amount but apparently sufficient to determine the change of wind on the Kathiawar coast, and the accompanying local rapid increase of temperature and local decrease of pressure. If this be the explanation it is an interesting example of one of the various ways in which low pressure areas may form in India.

The chief feature of the remainder of the period from the 10th to the 14th was the extension of the area of high temperature and the easterly movement and contraction of the area of low temperature which covered nearly the whole of Northern and Central India and the North Deccan on the 10th. The following temperature variation data illustrate these changes:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	10th February.	11th February.	12th February.	13th February.	14th February.
	°	°	°	°	°
Baluchistan	+4·8	+9·1	+7·1	+6·6	+7·9
Sind	+0·8	+0·8	+1·0	+2·0	+3·1
Gujarat	+4·2	+4·4	+4·7	+4·7	+3·5
Rajputana	—0·2	+1·2	+3·6	+5·4	+6·0
Punjab	+1·4	+1·8	+3·6	+3·4	+3·4
United Provinces	—2·3	—1·8	—0·1	+0·9	+2·5
Central India	—2·9	—1·2	—0·6	+2·4	+4·4
Central Provinces	—4·7	—5·4	—3·5	—1·5	+1·4
Berar	+0·9	—0·5	—0·4	—0·5	+2·8
Orissa	—3·2	—4·0	—4·9	—3·8	—2·4
Bengal	—3·6	—3·3	—1·7	—0·5	+0·4
Assam	—3·7	—2·0	—0·7	0	+1·2
Bihar	—3·1	—1·9	—0·6	+0·6	+1·1
Chota Nagpur	—4·6	—4·5	—2·9	—1·2	+0·9

The deficiency of temperature was far more marked in the night than the day temperature, as is usually the case

when very dry weather with light westerly winds and clear skies obtains. The following gives examples:—

Date.	Station.	Variation from normal. Maximum temperature of date.	Minimum temperature of date.	Mean temperature of date.
		°	°	°
9th February	Benares	−5·6	−10·2	−7·9
	Jubbulpore.	−2·1	−12·3	−7·2
10th „	Sambalpur.	−3·1	−11·6	−7·4
	Jubbulpore.	−2·3	−11·5	−6·9
11th „	Sambalpur	−4·3	−13·4	−8·9
	Saugor Island	−1·0	−12·3	−6·7
12th „	Chanda	−1·7	−10·4	−6·1
	False Point	−0·1	−10·0	−5·1

An important effect of these variations was to increase the diurnal range by amounts in some cases ranging up to 10° or 11°.

The weather became very slightly unsettled on the 12th and 13th, apparently the result of the sharp contrast of temperature conditions in different parts of India, and the large local changes of humidity and moderate local changes of pressure. As a consequence light thunder showers fell on the 12th and 13th in parts of Burma and also in Southern India.

On the 13th pressure was in excess by amounts varying from ·15″ in the submontane districts of Northern India to ·01″ in Gujarat and Kathiawar (where there was throughout this period, relatively to the neighbouring districts, a very shallow low pressure area). Temperature was in moderate to large excess in North-Western India and North Bombay and was in slight to moderate defect in the Peninsula and Burma.

Steepish gradients and considerably stronger winds than usual obtained in the Bay area on the 10th and following days. Light showers due to these strong winds fell in Ceylon between the 10th and 12th and again on the 14th and 15th and in the South Coromandel Coast districts on the 13th, 14th and 15th. Weather was also very feebly disturbed during this period in Burma and light local thundershowers were received in the central districts.

Third period, from the 14th to the 21st.—It has been pointed out that the pressure variations during the greater part of the month indicated the existence of persistent local abnormal conditions in Gujarat and Kathiawar. There was a noteworthy tendency to large local excess of temperature, persistent feeble unsteady winds and the formation of a shallow low pressure area. These conditions were very marked on the 13th and 14th. Temperature was from 6° to 10° in excess in that area on the 14th on which day a shallow depression lay over Gujarat. Skies were partially clouded and some local thundershowers of little importance occurred during the day. The depression filled up partially on the 15th but skies continued more or less clouded. On the 16th it slightly intensified again and extended eastwards. Thunderstorms and duststorms, due to the general disturbance, occurred in the western and northern districts of the Central Provinces and Central India and gave light local showers.

No change of the weather conditions in this area and Upper India occurred until the 19th and the chief feature during this period was the persistent large excess of temperature over the whole of Northern and Central India and the North Deccan. The following gives data in illustration:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 15th February.	16th February.	17th February.	18th February.
	°	°	°	°
Bihar	+1·9	+4·2	+5·1	+5·0
Chota Nagpur	+1·9	+3·9	+5·7	+7·0
United Provinces	+4·5	+5·7	+7·5	+6·2
Punjab	+4·3	+5·4	+6·7	+7·5
Sind	+2·9	+3·7	+3·0	+5·0
Rajputana	+5·8	+6·3	+7·7	+8·5
Gujarat	+4·9	+4·2	+5·0	+3·2
Central India	+7·2	+7·2	+8·2	+6·8
Central Provinces	+2·8	+3·5	+5·8	+3·1
Berar	+4·1	+5·2	+7·3	+4·0
Bombay Deccan	+2·7	+2·6	+3·7	+3·2

The excess was, over the greater part of the areas, as pronounced in the night as in the day temperature. It was on the whole greatest in actual amount at the hill stations in the Western Himalayas. Data for these stations are given below:—

Hill Station.	Variation from normal of Maximum temperature of 15th Feby.	16th Feby.	17th Feby.	18th Feby.	Variation from normal of Minimum temperature of 15th Feby.	16th Feby.	17th Feby.	18th Feby.
	°	°	°	°	°	°	°	°
Chakrata	+9·1	+9·7	+11·4	+7·6	+6·4	+6·2	+8·9	+8·2
Simla	+8·7	+10·6	+10·3	+10·9	+8·8	+8·2	+9·0	+8·8
Murree	+8·1	+9·7	+11·4	+9·1	+7·3	+9·1	+8·9	+8·7
Srinagar	+20·9	+21·6	+17·3	+21·1	−4·3	−3·6	+6·2	+2·9
Leh	+10·3	+9·5	+10·2	+9·9	1·2	+2·0	+10·7	+7·8

The North Bombay depression was feebly marked on the 17th and 18th and lay over Gujarat as on the previous three days. During the next 24 hours it extended or shifted northwards and lay over West Rajputana and Gujarat. Skies were partially clouded at 8 A.M. over the whole of North-West and Central India and North Bombay. Temperature was, as hitherto, excessive and the followin varia-

tion data for the preceding 24 hours indicate the remarkable conditions which obtained in a part of that area :—

Station.	Variation from normal of Maximum temperature, 19th February.	Minimum temperature, 19th February.	Mean temperature, 19th February.
	°	°	°
Srinagar	+20·8	+3·6	+12·2
Rawalpindi	+16·4	+4·9	+10·7
Sialkot	+15·3	+6·0	+10·7
Umballa	+15·2	+1·1	+8·2
Khushab	+15·2	+1·3	+8·3

Some local thunderstorms occurred in the plains and light snowstorms in Kashmir during the 24 hours preceding 8 A.M. of the 19th. The shallow depression marched eastwards during the day into Central India and gave rise to a subsidiary depression in North Rajputana and the South-East Punjab. Weather was now feebly unsettled over a large part of North-West and Central India. Snowstorms were reported from Kashmir, hailstorms from the outer hill stations and thunderstorms in the plains. The accompanying precipitation was generally small in amount, in most cases not exceeding a tenth of an inch. Nowgong in Central India had a fall of 0·54 inch and Sutna of 0·35 inch.

The depression area of disturbed weather shifted slightly eastwards during the next 48 hours, at the same time filling up. It gave showers in the Upper India hills and Bihar on the 21st and in Chota Nagpur, Bihar, Bengal and Assam on the 22nd and 23rd. This disturbed weather reduced temperature slightly in Northern India, but temperature continued more or less above the normal over the whole of Northern and Central India and was in slight to moderate detect over the greater part of the Peninsula, an example of the contrast of temperature conditions in Extra-Tropical and Tropical India which is the usual rule in the cold weather. The following data illustrate the temperature conditions which obtained during the period from the 19th to the 22nd :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 19th Feb.	20th Feb.	21st Feb.	22nd Feb.
	°	°	°	°
Assam	+2·6	+3·7	+4·3	+3·3
Bengal	+3·8	+4·1	+4·0	+4·1
Orissa	+2·7	+1·4	+1·8	+1·1
Bihar	+5·7	+7·2	+5·4	+4·1
Chota Nagpur	+6·0	+7·8	+4·0	−0·1
United Provinces	+8·2	+8·0	+4·3	+4·3
Punjab	+9·2	+8·6	+6·2	+4·7
Sind	+6·0	+3·6	+2·6	+3·0
Rajputana	+6·7	+5·9	+4·3	+5·0
Gujarat	+3·4	+1·3	−1·2	+0·5
Central India	+6·0	+6·0	+2·4	+3·5
Central Provinces	+4·1	+5·0	+4·0	+4·1
Berar	+3·4	+5·3	+4·3	+3·3
West Coast	+2·0	+1·4	+0·9	+0·2
Bombay Deccan	+1·9	+1·5	+1·5	+1·0
Mysore	+0·2	+0·1	−0·9	−2·0
Madras Coast	−0·9	−0·9	−0·8	−1·4
Madras Deccan	−2·1	−0·9	−2·0	−2·5
South India	+0·6	−2·2	−2·4	−1·9

A very rapid increase of pressure occurred in East and South Russia on the 14th, and pressure was from two to six-tenths of an inch above the normal during the remainder of the month. The area of this anti-cyclone, instead of running east and west across Central Asia, apparently ran northwards across East Russia. The accompanying air movement both in upper and lower strata must hence have been very abnormal and was associated with continued absence of cold weather storms in Northern India and with remarkable pressure and temperature conditions in India.

Fourth period from the 23rd to the 28th February.—During this period abnormally high pressure obtained in South-East Russia. Fine, dry weather with clear or lightly clouded skies continued in the Persian Area. Similar marked high pressure or anti-cyclonic conditions obtained in India during the period from the 23rd to the 26th. The following data for the period 22nd to the 26th indicate the character of the pressure conditions :—

Station or Area.	Variation from normal of 8 A.M. pressure of 22nd February.	23rd February.	24th February.	25th February.	26th February.
	"	"	"	"	"
Baghdad	...	...	+·133	−·188	−·086
Bushire	+·057	+·138	+·124	+·005	−·102
Quetta	+·157	+·157	+·153	+·071	+·025
Leh	+·287	+·314	+·206	+·066	+·015
Simla	+·160	+·195	+·175	+·095	+·065
Extra-Tropical India	+·110	+·150	+·125	+·028	−·025
Tropical India	+·081	+·141	+·137	+·070	+·014
Port Blair	+·102	+·145	+·111	+·060	+·001
Colombo	+·062	+·111	+·100	+·050	+·023
Zanzibar	+·076	+·120	+·101	+·089	+·087
Singapore	+·029	+·077	+·021	+·021	−·127

Pressure was during this period more or less in excess, the excess being most marked in Upper India, the Persian

area and the hill districts and was absolutely greatest at the most elevated station (Leh).

During the same period temperature was more or less above the normal over nearly the whole area. The following gives temperature variation data for the same stations or areas as in the preceding table :—

Station or Area.	Variation from normal of mean temperature of				
	22nd Feb.	23rd Feb.	24th Feb.	25th Feb.	26th Feb.
	°	°	°	°	°
Baghdad	...	...	+11·1	+13·3	+ 7·6
Bushire	+7·7	+6·6	+ 4·4	+7·3	+10·6
Quetta	+4·2	+7·1	+ 4·1	+2·9	+ 4·0
Leh	+6·0	+6·6	+ 9·5	+8·0	+11·5
Simla	+1·9	+7·8	+ 9·6	+8·0	+ 5·2
Extra-Tropical India	+3·6	+3·9	+ 3·5	+3·3	+3·4
Tropical India	−0·4	−0·4	+ 0·2	+0·3	+0·7
Port Blair	+2·4	+1·7	+ 2·5	−0·5	...
Colombo	−0·2	−0·3	+ 4·2	+1·4	+0·1
Zanzibar	−1·7	−2·4	− 1·1	− 3·7	−1·2
Singapore	+1·4	+2·6	+ 3·0	+1·1	+2·5

The temperature conditions and changes in India are shown more fully by the following table :—

Province or Division.	Variation from normal of mean temperature of				
	22nd Feb.	23rd Feb.	24th Feb.	25th Feb.	26th Feb.
	°	°	°	°	°
Burma	+1·7	+1·7	+0·7	+0·1	+0·1
Assam	+3·3	+3·9	+2·1	+2·9	+3·5
Bengal	+4·1	+3·5	+2·1	+1·0	+1·1
Orissa	+1·1	+1·3	+1·0	+1·0	+2·7
Bihar	+4·1	+3·8	+2·4	+1·9	+2·4
Chota Nagpur	−0·1	+2·1	+1·1	+2·3	+3·8
United Provinces	+4·3	+2·8	+2·7	+2·5	+3·0
Punjab	+4·7	+5·2	+5·2	+5·9	+6·7
Sind	+3·0	+3·6	+4·0	+3·8	+5·5
Rajputana	+5·0	+1·7	+3·2	+5·4	+2·8
Gujarat	+0·5	+5·0	+4·5	+3·2	+1·4
Central India	+3·5	+3·2	+5·4	+4·0	+4·0
Central Provinces	+4·1	+3·7	+4·6	+4·1	+3·6
Berar	+3·3	+5·6	+4·7	+6·6	+3·2
West Coast	+0·2	+1·2	+1·7	+1·5	+1·1
Bombay Deccan	+1·0	+2·0	+1·2	+2·0	+1·9
Mysore	−2·0	−2·7	−1·3	−2·0	+0·6
Madras Coast	−1·4	−1·8	−0·9	−0·9	+0·1
Madras Deccan	−2·5	−4·0	−3·0	−1·5	−0·6
South India	−1·9	−1·8	−0·7	−2·9	−1·6

Pressure gave way rapidly in Persia, Baluchistan and North-Western India on the 25th. A feeble general disturbance thus initiated gave much cloud and some rain in Persia on the 26th and a shallow depression passed from that area across Upper India on the 26th and broke up against the hills on the 27th. Light snow fell on the Kashmir hills on the 26th and 27th. The disturbance exercised very little influence on the temperature conditions. Temperature varied little from the normal in Burma and the Peninsula from the 26th to the 28th, but was in moderate to very large excess in Northern and Central India. The following gives variation data for that area : —

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	26th February.	27th February.	28th February.
	°	°	°
Burma	+0·1	+0·4	−0·1
Assam	+3·5	+1·7	+1·9
Bengal	+1·1	+3·3	+3·4
Orissa	+2·7	+3·6	+2·5
Bihar	+2·4	+3·6	+4·5
Chota Nagpur	+3·8	+5·1	+4·9
United Provinces	+3·0	+4·0	+4·3
Punjab	+6·7	+8·3	+9·0
Sind	+5·5	+6·8	+5·7
Rajputana	+2·8	+3·4	+5·7
Gujarat	+1·4	+1·0	+0·8
Central India	+4·0	−1·8	+2·2
Central Provinces	+3·6	−0·9	+1·5
Berar	+3·2	+1·3	+0·9
West Coast	+1·1	+0·7	+0·2
Bombay Deccan	+1·9	+1·2	+1·1
Mysore	+0·6	+0·7	+0·7
Madras Coast	+0·1	+0·1	+0·3
Madras Deccan	−0·6	−0·5	+1·0
South India	−1·6	−1·3	−0·3

The most important features of the meteorology of India at the end of the month were the abnormally high temperature in Upper India, the adjacent hill districts and Baluchistan, persistent excess of pressure, great dryness of the air, freedom from cloud and absence of rain.

Pressure.—The mean pressure of the Indian land area was very largely above the normal. The excess was ·088″, larger than has been observed during the past 26 years. This abnormal excess of pressure extended southwards over the Indian Seas and Ocean and as far west as South-East Russia, Asiatic Turkey and Persia and as far north as Thibet, and probably over an even larger area but data are not yet available to trace out the extension of this feature and to ascertain whether there is

any large corresponding area of deficient pressure.

It may also be noted, that pressure was above the normal on every day from the 3rd to the 28th so that the feature of increased pressure was remarkably persistent and steady. The excess was considerably larger in amount over the whole of the Western Himalayas. This excess at the level of the hills as compared with the plains was apparently a result of the high temperature which obtained over the whole of North-Western India and the regions to the north and west.

The local variations of pressure (that is, the variations relative to the general condition of excess of ·088″) were generally small in amount and of little significance. They were positive to the east of a line running north and south through Khushab, Bikaner, Indore, Hyderabad, Bellary and Madras and negative to the west and south. The excess in that large area was less than ·02″ except in Central and Upper Burma where it ranged between ·02″ and ·032″.

The negative variations at stations to the west of that line were less than ·02″ except in Gujarat and the North Konkan or in the area where there was a tendency to the origin of shallow depressions and feeble disturbances.

The following table gives the mean pressure variations and anomalies of the month for the eleven meteorological provinces of India :—

METEOROLOGICAL PROVINCE.	Variation from normal of mean 8 A.M. pressure of February 1902.	Pressure anomaly, February 1902.
	″	″
Burma Coast and Bay Islands	+·096	+·008
Burma Inland	+·116	+·028
Assam	+·102	+·014
Bengal and Orissa	+·093	+·005
Gangetic Plain and Chota Nagpur	+·091	+·003
Upper Sub-Himalayas	+·093	+·005
North-West Frontier, Indus Valley and North-West Rajputana.	+·084	—·004
East Rajputana, Central India and Gujarat	+·079	—·009
Deccan	+·085	—·003
West Coast	+·071	—·017
South India	+·085	—·003

Pressure was more largely in excess at the hill stations than at the neighbouring plains stations, *i.e.*, the vertical pressure anomalies were positive and large in amount, a condition usually accompanying deficient rain and snow in Upper India in the cold weather.

Temperature.—The mean temperature conditions of the month were as remarkable as the pressure conditions. The usual rule in India is for increased temperature to accompany decreased pressure, and *vice versâ*. In February, 1902, temperature was very largely in excess over a large part of the area of great excess of pressure and at some stations the mean temperature variations of the month were larger than have been observed in February during the past 25 years.

The mean maximum or day temperature of the month was greatest in the Deccan, Khandesh and Gujarat in which it ranged between 90°·0 and 94°·2 (at Kurnool where it was absolutely greatest) and decreased slightly seawards and rapidly northwards, on the one hand to the North Punjab at Peshawar, where it was 74°·6, and on the other to Upper Assam where it was 73°·0 at Dibrugarh. It was slightly below the normal in the Peninsula south of Lat. 19° N. It was more or less in excess over the remainder of India, the excess increasing in amount westwards and northwards. It ranged between 5° and 10° in the Punjab, Sind and Rajputana. The excess was as largely pronounced in Baluchistan, Afghanistan, Persia and Asiatic Turkey.

The following gives data for the representative stations at which the excess was greatest :—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Srinagar	57·4	42·3	+15·1
Rawalpindi	75·5	64·8	+10·7
Khushab	79·0	68·7	+10·3
Quetta	61·6	53·1	+8·5
Sialkot	78·9	69·6	+9·3
Teheran	53·7	52·1	+1·6
Ispahan	57·8	54·3	+3·5
Baghdad	73·7	65·2	+8·5
Leh	38·7	31·4	+7·3
Cherat	61·9	52·1	+9·8

The highest day temperatures of the month were at several stations higher than have been previously recorded in February. The following gives examples :—

STATION.	Highest maximum temperature recorded in February 1902.	Date on which recorded.	Highest maximum temperature recorded in February previous to 1902.	Year in which recorded.
	°		°	
Rawalpindi	82·4	26th	82·0	1887
Umballa	90·0	20th	87·0	1897
Sialkot	86·6	27th	83·7	1879

The mean minimum temperature of the month decreased very regularly northwards from the Malabar and South Konkan districts (where it averaged 72°) northwards to the North Punjab where it averaged 42°.

The following gives some of the lowest minimum temperatures recorded at the observing stations :—

Station.	Lowest minimum temperature recorded in February 1902.	Date on which recorded.
	°	
Dras	—25·9	3rd
Minimarg	— 6·0	8th
Kashgar	— 4·2	5th
Sonemarg	— 3·4	1st
Leh	5·0	8th
Kalat	5·4	2nd
Yatung	16·9	9th
Srinagar	17·1	8th
Skardu	18·1	3rd and 4th
Quetta	16·8	2nd
Kabul	18 8	7th
Teheran	20·0	2nd
Ispahan	19·1	5th
Baghdad	33·7	3rd
Dera Ism. il Khan	31·5	1st
Khushab	31·4	1st
Peshawar	34·4	2nd
Montgomery	34·5	2nd
Jacobabad	35·0	1st
Rawalpindi	33·0	3rd
Umballa	34·0	9th
Roorkee	34·8	6th
Simla	33·1	7th
Mussooree	35·0	10th
Murree	30·5	2nd
Cherat	37·0	14th
Darjeeling	30·5	10th

The lowest minimum temperatures were in no respect remarkable. In consequence of the great dryness of the air, notwithstanding the high day temperature, the mean night temperature of the month was below the normal over the greater part of India.

The following gives data for the two areas in which it was 2° or upwards in defect :—

Area.	Station.	Mean minimum temperature. Actual, February 1902.	Normal, February.	Variation of actual from normal February 1902.
		°	°	°
First Area	Dinajpur	49·9	53·1	—3·2
	Darbhanga	51·8	54·4	—2·6
	Purnea	49·4	51·4	—2·0
Second Area	Dera Ismail Khan	42·2	44·9	—2·7
	Jacobabad	46·2	48·5	—2·3
	Khushab	44·0	46·1	—2·1

It was somewhat higher than usual in the north-west of the Peninsula, Central India and Lower Burma. The following gives data for stations at which the mean minimum or night temperature of the month was 2° or more above the normal :—

Hill Station.	Mean minimum temperature. Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Saugor	58·7	55·4	+3·3
Indore	55·0	52·1	+2·9
Jhansi	57·8	55·4	+2·4
Bassein	67·9	64·9	+3·0
*Diamond Island	74·8	72·3	+2·5

The most noteworthy feature was the large excess at the hill stations in Northern India and Afghanistan. The following gives data :—

Hill Station.	Mean minimum temperature. Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Leh	14·9	9·8	+5·1
Simla	40·5	35·6	+4·9
Murree	39·1	34·5	+4·6
Chakrata	40·1	36·1	+4·0
Ranikhet	44·2	40·8	+3·4
Kabul	27·5	23·3	+4·2

The mean temperature of the month was below the normal in the eastern and central districts of the Peninsula and in Burma. The variations were generally small and were on the whole greatest in South Madras where they averaged 1½°.

Temperature was more or less above the average over the remainder of India and in the areas to the north-west including Baluchistan, Afghanistan and Persia. The excess increased on the whole northwards and westwards and exceeded 4° in the North and Central Punjab, the Upper India hill districts, Afghanistan, North Baluchistan and probably Persia and Asiatic Turkey.

The following gives data for stations at which the excess was more than 5° in amount:—

Station.	Mean daily temperature.		
	Actual, February 1902.	Normal, February.	Variation of actual from normal February 1902.
	°	°	°
Cherat	53·5	46·1	+7·4
Srinagar	41·8	34·8	+7·0
Leh	26·8	20·6	+6·2
Murree	47·4	41.2	+6·2
Simla	46·3	40·7	+5·6
Rawalpindi	58·4	53·1	+5·3
Sialkot	63·0	57·8	+5·2
Peshawar	59·5	54·4	+5·1
Chakrata	48·8	43·7	+5·1
Baghdad	60·6	52·5	+8·1
Kabul	43·6	35·9	+7·7

The temperature conditions were not such as usually accompany high pressure and anti-cyclonic conditions but this was due (1) to the absence of snowfall and (2) to the persistent fine weather with clear skies and bright sunshine. According to the latest information the abnormal features of the weather conditions in Persia and South-Eastern Russia were similar to those in Upper India and Baluchistan.

Winds.—The air movement in India and the adjacent seas was considerably modified by the unusually high pressure conditions which obtained in the Persian area and South-East Russia. It was more vigorous than usual in the Arabian Sea and Bay of Bengal and to a somewhat less extent in the former than the latter area. The increased intensity of the winds was most marked in the Arabian Sea from the 1st to the 8th and the 18th to the 22nd and in the Bay of Bengal during the greater part of the month, but more especially from the 1st to the 14th.

The air movement was below the average over the greater part of the Indian area, more especially over the area of most abnormal meteorological conditions, including Central India and West and North Bombay, where it was not only feebler than usual but unusually variable and unsteady.

Winds were generally stronger and steadier than usual in the Peninsula. The increase in the steadiness was on the whole most marked in the Deccan and Madras Coast districts. Winds were also very steady at the hill stations in Upper India.

The variations of the direction of the mean air movement of the month were generally small in amount. Winds were more easterly than usual at Port Blair and over the centre and south of the Peninsula. They were, on the other hand, more northerly in Burma and the interior of Bengal but more westerly in the Gangetic Plain, the Punjab and Sind. These deflections of the air movement were in general accordance with the pressure anomalies. Southerly local sea winds set in somewhat later than usual on the Bengal coast.

Humidity.—One of the most prominent features of the month was the abnormal dryness of the air over nearly the whole country, but more especially in North-Western India and Baluchistan. The driest periods were from the 1st to the 9th and again from the 15th to the 28th. The relative humidity at several stations during the first period fell below 10 per cent., a most unusual circumstance in February. The air was slightly damper than usual in the Coromandel coast districts, the Madras Deccan and at the Bay Islands but was, on the mean of the month, drier over the remainder of India. The deficiency was small in the Deccan but increased northwards from the North Deccan and westwards from the Bengal coast to the submontane and hill districts of Upper India. The mean relative humidity of the month was 20 per cent. or upwards in defect in the areas defined by the following stations,—Leh (—29), Umballa and Dehra Dun (each —23), Chakrata (—22) and Simla, Peshawar and Roorkee (each —20).

The low humidity was in small part a result of the increased temperature of the month but was mainly due to a considerable to large deficiency in the amount of aqueous vapour present in the air averaging as much as 30 per cent. in Upper India.

The following table gives variation data of the mean aqueous vapour pressure and of mean humidity of nine meteorological provinces for the month of February 1902:—

Meteorological Province.	Mean Absolute Humidity.		Mean Relative Humidity.	
	Average actual, February 1902.	Variation of actual from normal, February 1902.	Average actual, February 1902.	Variation of actual from normal, February 1902.
	"	"	%	
Burma Coast and Bay Islands.	·700	+·016	70	0
Bengal and Orissa	·505	—·050	64	— 8
Gangetic Plain and Chota Nagpur.	·361	—·021	46	— 7
Upper Sub-Himalayas	·208	—·083	40	—21
Indus Valley and North-West Rajputana.	·264	—·027	41	—12
East Rajputana, Central India and Gujarat.	·193	—·050	25	—12
Deccan	·257	—·053	30	— 8
West Coast	·608	—·018	66	— 4
South India	·461	+·010	54	+ 3

Cloud.—Skies were unusually free from cloud in North-Western India during the month due to the remarkable absence of cold weather storms. Skies were generally free from cloud in Northern India even in the hill districts during the periods of anti-cyclonic conditions in the Persian and South and East Russian areas, *i.e.*, from the 1st to the 9th and the 15th to the 28th. There was a slight excess of cloud in the Peninsula and Lower Burma. This excess was most marked in the Konkan and Bombay Deccan immediately to the south of the area in Gujarat and Kathiawar where there has been, during the present cold weather, a marked tendency to the occasional development of low pressure areas and of slight disturbances. The cloud amount was between 1·0 and 2·0 below the normal over nearly the whole of North-Western and Central India.

The deficiency was most pronounced in the submontane and hill districts of Upper India where it ranged between 2·0 and 3·1 and was absolutely greatest at Srinagar (—3·1) and Ranikhet (—3·0).

The following gives variation data of the mean cloud amount of nine meteorological provinces for the month of February 1902 :—

Meteorological Province.	Mean cloud amount.		
	Normal of February.	Average actual, February 1902.	Variation of actual from normal, February 1902.
Burma Coast and Bay Islands	2·0	2·7	+0·7
Bengal and Orissa	2·2	2·3	+0·1
Gangetic Plain and Chota Nagpur	2·1	1·8	—0·3
Upper Sub-Himalayas	3·7	1·4	—2·3
Indus Valley and North-West Rajputana.	3·6	2·1	—1·5
East Rajputana, Central India and Gujarat.	2·7	1·3	—1·4
Deccan	1·5	2·4	+0·9
West Coast	0·8	1·8	+1·0
South India	2·0	2·7	+0·7

Rainfall.—February 1902 is the driest February on record in India. Over as much as three quarters of the whole area no rain fell. The remaining quarter including Upper Assam, part of Burma, South Madras, parts of Central India, the Central Provinces, Chota Nagpur and the submontane and hill districts of Upper India received light showers of little importance. The total rainfall for the month gave a mean of less than a quarter of an inch for the Indian area. The precipitation was as scanty in Baluchistan and Persia as in Northern India and was practically nil. A most important feature of the drought during the month was the very deficient snowfall in the mountain districts of North-Western India. The fall on the higher ranges appears to have been not more than a few inches which fell as light showers at intervals and hence melted away almost immediately after it fell. The chief feature of the month was hence the persistent drought throughout the period which was most serious in its economic aspect in Baluchistan and the Western Himalayas.

The following table gives comparative rainfall data of the eleven meteorological provinces or divisions:—

Meteorological Province.	Rainfall.			
	Mean actual for February 1902.	Mean normal for February.	Variation of actual from normal, February 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands.	1·09	0·44	+0·68	+115
Burma Inland	0·21	0·20	+0·01	+5
Assam	0·76	1·59	—1·02*	—64
Bengal and Orissa	0·02	0·90	—0·88	—98
Gangetic Plain and Chota Nagpur.	0·14	0·67	—0·52	—78
Upper Sub-Himalayas	0·07	1·37	—1·31*	—96
North-West Frontier, Indus Valley and North-West Rajputana.	0·01	0·46	—0·45	—98
East Rajputana, Central India and Gujarat.	0·06	0·18	—0·11*	—61
Deccan	0·05	0·27	—0·22	—81
West Coast	0·03	0·21	—0·17	—81
South India	0·38	0·38	—0·01	— 3

* A reference to Table I will show that the means of columns 2 and 3 are derived from a smaller number of stations than the means in the first column. The sum of the figures in columns 2 and 3 will, therefore, not agree with the figures in column 1.

JOHN ELIOT.

Atmospheric Pressure.

The mean 8 A.M. pressure of the Indian land area was largely in excess by amounts averaging ·088 inch for the whole area. The mean pressure of the month was in as marked excess in Asiatic Turkey, Persia, Arabia and the Equatorial Belt as in India. The excess of pressure, which was the most prominent feature of the pressure distribution of the month in India, hence covered the whole of the Indian monsoon area.

An examination of the Russian and English charts shows that these abnormal pressure conditions extended as far west at least as East and South Russia, where pressure was very largely above the normal during the greater part of the month.

The general anomaly of +·088″ is, it may be noted, the largest on record during the past 26 years, the largest positive anomaly previously on record being +·073″ in January 1877.

Relatively to the general condition, pressure was in

local defect or the anomalies were negative to the west and south of a line running from Madras through Bellary, Amraoti, Indore, Bikaner and Khushab to Rawal-pindi, as well as in the United Provinces, Baghelkhand and Bundelkhand. The anomalies were small in amount except in three areas, *viz.*, Upper Sind, Malabar and Ceylon and Gujarat, the North Konkan and the Bombay Deccan, for which data are given below :—

Province or Division.	Station.	Variation from normal of mean 8 A.M. pressure of February 1902.	Pressure anomaly, February 1902.
		″	″
Upper Sind	Jacobabad	+·067	—·021
Malabar and Ceylon	Calicut	+·067	—·021
	Colombo	+·066	—·022
Gujarat, North Konkan and Bombay Deccan	Deesa	+·060	—·028
	Bhavnagar Para	+·062	—·026
	Surat	+·066	—·022
	Bombay	+·065	—·023
	Poona	+·063	—·025
	Belgaum	+·067	—·021

Pressure was, relatively to the general condition, in excess over the whole of the remainder of India including Burma. The excess was less than ·010″ in amount at most of the stations, but was two or three times this amount in Upper and Central Burma, for which data are given below :—

Division.	Station.	Variation from normal of mean 8 A.M. pressure of February 1902.	Pressure anomaly, February 1902.
		″	″
Upper Burma	Kindat	+·112	+·024
	Bhamo	+·111	+·023
Central Burma	Thayetmyo	+·120	+·032
	Yamethin	+·118	+·030
	Minbu	+·117	+·029

Pressure was in even greater excess in the hill districts of Upper India and Baluchistan than in the adjacent plains. The vertical anomalies were hence positive and moderate to large in amount.

The following gives data for ten pairs of stations :—

Hill Station.	Variation from normal pressure, February 1902.	Plain Station.	Variation from normal pressure, February 1902.	Vertical pressure anomaly (Hill—Plain).
	″		″	″
Quetta	+·127	Jacobabad	+·067	+·060
Leh	+·157	Lahore	+·092	+·065
Murree	+·137	Peshawar	+·079	+·058
Simla	+·132	Ludhiana	+·098	+·034
Chakrata	+·109	Roorkee	+·097	+·012
Ranikhet	+·111	Bareilly	+·095	+·016
Darjeeling	+·097	Dhubri	+·102	—·005
Mount Abu	+·086	Deesa	+·060	+·026
Pachmarhi	+·092	Khandwa	+·082	+·010
Wellington	+·059	Coimbatore	+·078	—·019

The preceding data show that the vertical pressure anomaly was largest in amount at Leh, the most elevated station, thus indicating that the abnormal pressure conditions were much more strongly marked in the upper and middle atmospheric strata than at the level of the plains.

The following table, giving pressure variation data for the stations of Baghdad, Perim, Zanzibar, the Seychelles and Mauritius, shows roughly the extent of the area affected by the abnormal pressure conditions of the month :—

Station.	Variation from normal of mean pressure of February 1902.
	″
Baghdad	+·108
Perim	+·084
Zanzibar	+·063
Seychelles	+·053
Mauritius	—·043

Barometric depressions and cyclonic storms of the month.

As stated in the January Weather Review, the depression which gave slightly unsettled weather over the Western Himalayas on the last four days of January, was passing through North-Eastern India on the 31st. It lay over North Bengal on the morning of the 1st as a feeble depression in which pressure was a tenth of an inch below the normal. Skies were thickly clouded to the east of the depression in Assam and local showers had occurred in

that area during the previous 24 hours. Pressure increased slightly during the day in Bengal and the depression in that area filled up.

Pressure increased briskly to rapidly during the 2nd over the whole Indian region and was in general excess on the morning of the 3rd by amounts ranging from ·04″ in Ceylon and Burma to ·14″ in the west of Central India. The excess was absolutely greatest at Leh where it amounted to ·15″.

Pressure gave way locally in the Punjab and Kashmir during the next 24 hours and a low pressure area lay over the East Punjab on the 4th. The disturbance filled up during the day after giving a light fall of snow in Kashmir.

Pressure decreased generally on the 5th and 6th, and over by far the greater part of the country was only in moderate excess at 8 A.M. of the 6th. Fine, dry weather with decreasing temperature obtained generally over India during the next four days.

The chief feature of the period from the 6th to the 10th was the unusually large excess of pressure in the whole Indian monsoon area, most pronounced at the hill stations in Upper India and in Baluchistan. The excess was greatest at Leh, where it was as much as a third of an inch on the morning of the 10th.

The pressure changes during the next four days were generally downwards. The decrease of pressure on these days was not, however, accompanied, with any important change in the weather which remained fine with clear or lightly clouded skies.

The pressure distribution over the Bay favoured the prevalence of stronger winds than usual and a series of thunder showers occurred in Southern India from the 13th to the 15th. These showers were heaviest and most general in the Tanjore, Madura and Trichinopoly districts, several stations receiving falls ranging between 2 and 4 inches in 24 hours.

Conditions were also very slightly unsettled in Burma and light local thundershowers fell in that area.

The chief feature of the weather at this time was the abnormally high temperature in Gujarat and the neighbouring districts. These high temperature conditions were most marked on the 13th and 14th when the mean temperature was from 6° to 11° above the normal at the majority of stations in that area. During these days a slight depression formed over this region. It was feebly marked on the 15th, but came into prominence again on the 16th on which day a fairly regular cyclonic circulation of the winds obtained over Gujarat. The depression was practically unchanged in character and position on the 17th and 18th, but intensified slightly during the next 24 hours and shifting northwards lay over West Rajputana and North Gujarat at 8 A.M. of the 19th. Up to this stage the influence of the depression on the weather had been restricted to the Central Provinces and Central India where a series of thunderstorms had occurred giving light local showers. It was now beginning to affect a much larger area including Rajputana, the Punjab, the Western Himalayas, the Central Provinces and Central India. Skies were densely clouded in these areas and light snow had commenced to fall in Kashmir.

The following data show the position and character of the disturbance at 8 A.M. of the 19th:—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	″	″	″					
Bhuj	30·054	—·014	+·060	W	8	1	...	Fine.
Ahmedabad	·043	—·013	+·078	NW	2	2	...	
Deesa	·038	—·001	+·045	SE	5	4	...	
Hyderabad	29·993	—·098	—·012	SW	4	3	...	
Kurrachee	30·040	—·074	+·036	WSW	8	4	...	
Jacobabad	·011	—·085	—·003	NNW	2	10	...	
Jodhpur	·028	—·063	...	Calm	2	2	...	
Bikaner	·007	—·105	+·007	NE	8	3	...	

20th February.—Pressure had increased slightly in the area occupied by the depression on the previous day and had given way to a slight extent in the eastern and central districts of the United Provinces and Bundelkhand to which area the depression had advanced at 8 A.M. of this day. It was, as on the previous day, of very feeble intensity. The cyclonic circulation in the area of the depression was feeble and less regular than on the 19th. Thunderstorms had given showers in Bundelkhand, Baghelkhand and the neighbouring districts of the Central and United Provinces.

The following gives data for the depression area:—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	″	″	″				Inch.	
Jhansi	30·078	+·001	+·058	Calm	9	5	0·17	
Nowgong	·042	—·020	+·044	E	5	9	0·54	Thunderstorm.
Cawnpore	·026	—·054	+·072	SSE	5	8	0·08	Showery.
Lucknow	·058	—·038?	+·089	SW	3	10	...	
Allahabad	·046	—·021	+·073	WSW	7	0	0·04	Thunderstorm.
Sutna	·080	—·005	+·084	WNW	5	10	0·35	Raining.

A slight to brisk decrease of pressure had also occurred in the Punjab, North Rajputana and Kashmir and a sub-

sidiary depression had formed over North Rajputana and the South East Punjab.

The following data indicate the character and position of this depression at 8 A.M.:—

STATION.	PRESSURE.			WIND.				WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	
	"	"	"				Inch	
Bikaner .	29·983	—·024	—·007	SW	10	0	...	Dust haze.
Sirsa .	·973	—·055	—·016	NE	7	0	...	
Delhi .	30·046	+·007	+·058	SE		0	...	
Lahore .	·016	—·040	+·015	NE	3	3	...	
Ludhiana .	·039	—·034	+·059	NE	7	5	0·01	Drizzling.
D. I. Khan .	·038	—·069	+·016	NW	3	0	...	
Khushab .	·057	—·058	+·049	ESE	3	0	...	
Montgomery	·032	—·011	+·034	NW	10	3	...	
Mooltan .	·039	—·019	+·008	NE	1	0	...	

Skies were overcast in Kashmir and more or less thickly clouded in parts of the Punjab and Rajputana. Snow had fallen in Kashmir and the inner ranges of the Punjab Himalayas. Numerous thundershowers had occurred in the East Punjab and on the outer ranges of the Punjab Himalayas.

21st February.—A rapid recovery of pressure had taken place in the Punjab and North Rajputana and the depression in that area on the previous day had completely filled up. Light snow had again fallen in Kashmir and thundershowers in the East Punjab and the Simla and Mussooree hills, but skies were now clearing in these areas.

The original depression had moved slightly eastwards, but had filled up to some extent and was no longer shown as a closed low pressure area. Light to moderate showers had fallen in South Bihar, Chota Nagpur and Assam.

A brisk increase of pressure occurred during the day in Baghelkhand and the south-eastern districts of the United Provinces and the disturbance passed away completely. Light to moderate rain accompanying thunderstorms was received in Chota Nagpur on the 22nd and in Assam on the 23rd.

The disturbance under discussion presents several interesting features. It formed in an area of excessive temperature and relatively low pressure. It was practically stationary for some days after which it shifted slightly northwards into West Rajputana and thence passed rather rapidly along the usual track of cold weather storms into the central districts of the United Provinces where its progress was arrested and it broke up. The disturbance gave numerous thundershowers in the central parts of the country.

Strongly pronounced anti-cyclonic conditions obtained over the Indian area on the 22nd and 23rd, the excess of pressure on the 23rd being most marked at Leh, where it was over three-tenths of an inch.

Pressure decreased briskly to rapidly over the whole Indian area and in Persia from the 24th to the 26th. By these changes the abnormally large excess, which had characterized the pressure conditions over the Indian monsoon area during the previous three weeks, disappeared and was replaced by a slight to considerable deficiency over the greater part of Northern India and in the Persian area.

A shallow depression apparently formed in Persia during the period of decrease of pressure and passing rapidly eastwards lay over the South Punjab on the morning of the 26th. The disturbance drifted eastwards and broke up against the Simla and Mussooree hills during the next 36 hours. Light to moderate snow was received in Kashmir from the 26th to the 28th and some local showers in the Submontane Punjab on the 28th.

Pressure increased generally during the 27th and was normal or in slight excess over the greater part of India at the end of the month with the exception of Sind where it was below the normal to a slight extent. Fine weather obtained over the whole of the plains of India. Weather was, on the other hand, unsettled in Kashmir and light snow was falling.

The preceding account of the weather of the month has shown clearly the almost entire absence of cold weather storms during the period in the Persian area and Northern India. The available data show that this abnormal feature of the meteorology of the month was associated with the prevalence of a steady persistent excess of pressure over the whole Indian monsoon area and East and South Russia during the greater part of the period.

The following variation data for representative stations in India, Baluchistan and Persia for each alternate day show the remarkable intensity and persistency of these abnormal pressure conditions:—

STATION.	VARIATION FROM NORMAL OF 8 A.M. PRESSURE.												
	1st February.	3rd February.	5th February.	7th February.	9th February.	11th February.	13th February.	15th February.	17th February.	19th February.	21st February.	23rd February.	25th February.	27th February.
	"	"	"	"	"	"	"	"	"	"	"	"	"	"
Baghdad . . .	—·046	+·163	+·316	+·221	+·055	+·138	+·125	+·063	+·165	+·097	...	...	—·188	+·026
Bushire . . .	+·042	+·124	+·296	+·200	+·114	+·100	+·056	+·068	+·136	+·132	+·033	+·138	+·005	—·048
Quetta . . .	?+·041	+·099	+·202	+·195	+·185	+·121	+·126	+·120	+·167	+·092	+·131	+·157	+·071	+·023
Leh	0	+·150	+·030	+·051	+·291	+·265	+·166	+·161	+·123	+·152	+·172	+·314	+·066	+·094
Peshawar . . .	—·041	+·102	+·052	+·116	+·060	+·058	+·119	+·109	+·134	+·075	+·134	+·116	—·059	+·060
Sibsagar . . .	—·110	+·038	+·041	+·108	+·185	+·179	+·158	+·171	+·232	+·136	+·064	+·219	+·036	+·053
Bassein . . .	+·006	+·061	?+·099	+·104	+·100	+·154	+·187	+·133	+·187	+·125	+·100	+·151	+·030	+·042
Colombo . . .	+·017	+·044	+·104	+·075	+·057	+·072	+·065	+·069	+·129	+·094	+·036	+·111	+·050	—·020

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Wana.*—The Political Officer reports as follows :—

A slight fall of snow, about one inch in depth, occurred on the 20th on the higher peaks of Marwattai (11,000 feet) and Janimela (9,000 feet). The snow, however, melted as it fell and there was no accumulation at the end of the month. The snowfall of the period was much lighter than usual and the weather hence unusually warm and dry.

(2) *Kurram.*—The following report of the snowfall in the Kurram district has been received from the officer on special duty :—

"Snow fell on the Sufed Koh on the 18th, 19th, 20th, 27th and 28th. The falls were somewhat heavier than those received during the previous month. No snow fell at Para Chinar throughout the month. The first part of the month was very dry but heavy rain fell towards the close of the month. There was a fair amount of snow lying on the Sufed Koh at the end of the month."

(3) *Kabul.*—The following account of the snowfall at Kabul has been received :—

There was a very slight fall of snow on the 4th and 19th and of rain or hail on the 18th, 26th, 27th and 28th.

The Paghman range and the hills to the north and east were covered with snow, but there was no snow lying at Kabul itself at the end of the month. The snowfall during the month under review was practically *nil* as compared with 5½ inches during the corresponding period of 1901.

(4) *Kohat.*—No snow fell on the ranges bordering Kohat.

(5) *Kila Drosh.*—Light snow fell on the 4th, the 17th to the 20th and the 27th and 28th on the neighbouring hills, but the falls were light.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Murree.*—No snow fell during the month.

(2) *Leh.*—There were only two very light falls of snow during the month, *viz.*, on the 4th and 5th and 20th and 21st. The falls were somewhat more frequent on the surrounding hills but as they were light there was no great depth of snow on the Kardong Pass at the end of the month.

(3) *Upper Sutlej Valley.*—A feeble snow storm occasioned six inches of snow in the valley on the 9th and 20th, but it melted away during the next 48 hours and the snow line retreated to 13,000 feet. The weather was unusually warm and dry.

(4) *Simla Hill Districts.*—The following statement of the snowfall in the Simla district has been received from the Deputy Conservator of Forests, Bushahr division :—

Slight snow storms occurred on the 19th, 20th and 28th. On the 19th the depth of the fall was 2 inches, on the other two occasions less than this. The fall of the 20th descended as low as 5,750 feet. Below that elevation there was a heavy fall of rain.

The following statement shows the approximate depth of snow on certain passes at the end of the month :—

Name of Pass.	Elevation.	Approximate depth of snow at the end of the month.
Rupin	16,000 feet.	15 feet.
Borenda	16,000 „	15 „
Harang	12,000 „	4 „
Shatul	15,000 „	3 „
Bulder	16,000 „	15 „
Runang	14,000 „	1 foot.

The snowfall during the month was unusually small in amount.

(5) *Kulu.*—The following snowfall report has been received from the Assistant Commissioner, Kulu :—

Snow fell on the high peaks of the sub-division on the 20th and 21st but neither of the falls descended below 5,000 feet. The depth of snow at the end of the month on the various passes in the district was as follows :—

Tahsil.	Name of Pass.	Approximate depth of snow at the end of the month.
		Feet.
Kulu Tahsil	Rotang	10
	Hamta	7
	Barsai	4
	Bujadhar	2
	Chandarkhani	7
	Lohriachhri	1½
	Bhubu	2
	Bastari	1
	Sari	4½
	Majhang	½
Plach Tahsil	Srikhand	7
	Chul	1
	Maghini	1
	Dundku	1
	Tikar	1
	Nunu	½
	Ramgarh	½
	Jalori	1
	Raghopur	1
	Lumbri	1
	Sakiran	1
	Gargarasan	2
	Supakun	1
	Basleo	1
	Plach	1
	Tirath	1

The snowfall during the month was similar in character and amount to that of the corresponding period of 1892.

(6) *Chamba.*—The following account of the snowfall in the Chamba state during the month of February is drawn up from the report of the Deputy Conservator of Forests.

Snow storms occurred on the 1st, 4th, 19th and 27th.

The following is a statement of the snowfall as measured at the snow gauge stations :—

DATE.	Olansa, elevation 6,500 feet.	Barmaur, elevation 6,500 feet.	Tisa, elevation 10,000 feet.	Kilar, elevation 8,400 feet.
1st February 1902	...	...	Very slight fall.	...
4th " "	...	...	...	2"
19th " "	1"	5"	Snowline descended to 7,000 feet.	5"
27th " "	...	...	A slight fall.	1"

The storms were not general except in Pangi where they extended over the whole of the valley. At the end of the month there was no snow lying at any of the observing stations with the exception of Kilar where there was an accumulation of only two inches. The Sach pass remained closed. The snowfall during the month was exceptionally light and very largely below the average.

III.—UNITED PROVINCES HIMALAYAS.

(1) *Garhwal.*—About three inches of snow fell in the midland portion of the district on the 20th. The Niti and Mana passes were closed during the month. The snowfall of the period was less than usual.

(2) *Almora.*—The following report of the snowfall in this district during the month has been received from the office of the Commissioner of Kumaon.

Mallá Johar.—Snow fell as follows:—

5th February	. . . . .	4 feet.
7th "	. . . . .	4 "
17th "	. . . . .	4 "
20th "	. . . . .	6 "
28th "	. . . . .	6 "
		24 feet.

This was the depth of snow on the peak of Utamdhurá.

Mallá Dánpur—

19th and 20th February . . . . 1½ feet.

This was the depth of snow on the peaks of Pindari, Kaphini and Kantelá.

Byáns, Chandás and Dárma.—

	Ft.	Ins.
19th February	0	4
20th "	0	6
21st "	1	6
28th "	0	4
	2	8

The snowfall during the period under report was greater than in the corresponding period of the previous year in Mallá Johar and less in the other two Mállas.

Summary of snowfall information.—The month was unusually free from cold weather storms and the precipitation was hence very scanty and restricted to much higher elevations than usual. Snow accumulation at the end of January melted rapidly during the fine dry weather of February so that at the end of the month the snow line in some parts of the Punjab Himalayas was at an elevation of 13,000 feet.

The snowfall of the season up to the end of February was almost certainly much below the average in the Western Himalayas, Baluchistan and the Afghan mountains and probably also in the Persian area.

There is, it may be noted, a strong resemblance between the present season up to date and the corresponding period of 1891-92.

Summary of Special Storm Reports.

An occasional feature of cold weather disturbances in Northern India is the occurrence of hailstorms and thunderstorms. These storms also occur during disturbances of the hot weather type when temperature increases more rapidly than usual and is considerably above the normal. Severe local storms appear to be more frequent under the latter conditions than during the cold weather disturbances.

The following gives a statement of the chief local storms during the month :—

14th.—Thunderstorm with rain at Khandwa at 6 P.M.

19th.—Duststorm at Khandwa at 2 P.M.

Thunderstorm with rain at Pachmarhi during the night. It lasted four minutes.

Thunderstorm and hailstorm at Simla from 6 P.M. to 11 P.M.

20th.—Severe thunderstorm and hailstorm at Simla from 8-43 A.M. to 10-28 A.M. The storm came from the south-west and was followed by a second thunderstorm from the west between 2-38 P.M. and 4-18 P.M.

The following reports of hailstorms have been received from political officers in Rajputana and Central India :—

19th.—Slight hailstorm at Cherawa in the Jaipur state. It came from the west and lasted three minutes.

" Hailstorm in the Deoran and Bhagwantpura villages in the Byawar state. The storm inflicted much damage on the crops in the latter village.

" Severe hailstorm in parts of the Chattarpur and Belehri states. The largest hailstones are reported to have been of the

size of a betelnut. The storm inflicted much damage on the crops in some of the villages affected. An old woman was killed by the hail during the storm.

19th.—Slight hailstorm in a part of the Lughasi Jagir. It damaged the Rabi crops slightly.

Severe hailstorm in the parganas Ranod, Zawad, Mandasore and Khaichrode of the Gwalior state. It inflicted much damage on the standing crops in some villages of the Zawad pargana. The storm was most severe in a part of the mauza Amalwad in the Mandasore pargana where it completely destroyed the standing crops.

20th.—Severe hailstorm in the parganas Anupshahar and Ahar of the Bulandshahr district. The storm came from the south. The largest stones were about a chhatack in weight. The storm damaged the standing crops in 36 villages to the extent of 4 to 12 annas in the rupee.

The following reports of earthquakes during the month have been received :—

14th.—Earthquake at Mount Abu at 9-30 P.M. It lasted about 30 seconds.

16th.—Severe earthquake shocks were experienced at Chaman during the morning.

Brief Summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—Very strongly marked north-east monsoon conditions obtained throughout nearly the whole month over the Arabian Sea, except along the Indian Coast, where winds were somewhat unsteady due to the varying pressure conditions over the neighbouring land area. The mean daily air movement was identical with the normal on the 8th and 23rd ; slightly weaker than usual on the 9th, 12th, 13th and 26th, and more or less above the normal on all other days. Winds were, on the whole, strongest on the 5th, when their intensity, as deduced from the data of 30 vessels, averaged 4·3, and feeblest on the 9th (2·5). On the mean of the whole month the air movement in the Arabian Sea was 0·4 above the normal.

Weather was very feebly disturbed on one or two occasions during the month in the extreme south-east along the Malabar coast and fine with little or no cloud over the remainder of the area.

In the Persian Gulf north-westerly or westerly winds obtained on most days during the month. Weather was fine in that area except on the 3rd, 4th and 9th when it was slightly disturbed with light rain squalls.

In the Gulf of Aden and the south of the Red Sea the winds, although fairly normal in direction on most days, were considerably above their normal strength. This is shown strikingly by the data of Perim where the daily air movement averaged 592 miles, as compared with 430, the normal daily velocity in February. Winds were strongest at that station on the 9th, 20th, 21st, 22nd, 24th and 25th when they blew with a velocity of 30 to 34 miles an hour. Weather was feebly unsettled in that area on one or two occasions.

Bay of Bengal.—The air circulation was fairly normal in character over this area during the greater part of the month except in the north where abnormal westerly winds were experienced on the 1st, 2nd, 5th, 6th, 13th, and 15th and again from the 23rd to the 25th. Winds were stronger than usual on at least 22 days during the month. The variations of strength, from day to day, were, however, larger than usual, the mean force over the whole area varying between 2·0 and 3·9. The mean strength of the air movement during the month was 2·9, or, 0·4 above the normal. Weather was settled throughout the month over the whole region except in the vicinity of the East Ceylon coast where showers and squalls were of frequent occurrence during the first nineteen days of the month.

An important feature of the air circulation of the month are the local southerly sea winds which usually set in over the head of the Bay in the second week of the month. During the month under review these did not appear until the 26th of the month.

Equatorial Belt.—The data available for this region are as usual very scanty. They, however, show that moderate to strong northerly winds obtained in the extreme west of the belt along the African Coast during the first three weeks of the month and unsteady westerly winds during the remainder of the month. In the central portion of the belt, on the other hand, winds were much less steady during the first seventeen or eighteen days, winds from between north and east alternating with those from between west and north.

The South-East Trade winds were restricted to Lat. 10° or 11° S. during the first week of the month, but extended temporarily northwards during the next fortnight and obtained as far north as Lat. 4° or 5° S. at the end of the month.

The returns for the Seychelles and Zanzibar show that the air movement was more vigorous than usual at both these stations, more especially at the latter station, which, it may be noted, obtained more than double its normal fall of rain during the month.

Temperature of the Air.

February 1902 was warmer than usual over the greater part of the country due to the absence of cold weather storms and the prevalence of much finer and drier weather than usual. The cool waves of the month were feeble, and exercised little influence on the temperature conditions established during the preceding month.

The mean maximum or day temperature of the month was below the normal in Lower and Central Burma,

Madras and Mysore. The deficiency was small in amount over the greater part of the area, exceeding 2° only at the stations for which comparative data are given below :—

Station.	Mean maximum temperature.		
	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Rangoon	88·8	92·8	−4·0
Toungoo	86·9	90·9	−4·0
Yamethin	90·3	92·5	−2·2
Trichinopoly	89·9	92·3	−2·4
Coimbatore	89·7	92·0	−2·3

The mean maximum temperature of the month exceeded the normal over the remainder of the Indian area. The excess was more than 2° over the whole of Northern India. It was more than 4° over the whole of North-Western India and North Bihar and exceeded 6° over Upper Sind, nearly the whole of the Punjab and the extreme north-west of the United Provinces. The excess was absolutely greatest at the following stations :—

Station.	Mean maximum temperature.		
	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Rawalpindi	75·5	64·8	+10·7
Khushab	79·0	68·7	+10·3
Sialkot	78·9	69·6	+ 9·3
Peshawar	74·6	66·1	+ 8·5

These stations hence defined the area of greatest excess of day temperature in the plains of India.

The increase in the day temperature was exhibited as largely in the Western Himalayas, Baluchistan and Afghanistan (represented by Kabul) as in the adjacent plains.

The following table gives data in illustration :—

Station.	Mean maximum temperature.		
	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Srinagar	57·4	42·3	+15·1
Kabul	59·6	48·5	+11·1
Cherat	61·9	52·1	+9·8
Quetta	61·6	53·1	+8·5
Chaman	64·7	57·0	+7·7
Murree	55·7	48·0	+7·7
Leh	38·7	31·4	+7·3
Chakrata	57·4	51·2	+6·2

The highest day temperatures of the month were generally recorded in the last week of the month (chiefly between the 26th and 28th). Higher day temperatures were registered in the region of greatest excess of maximum temperature in the Submontane Punjab than had been observed in that area during the last 25 years.

The following table gives the highest maximum temperatures registered in February, with the highest hitherto recorded, at these stations :—

Station.	Highest maximum temperature recorded in February 1902.	Date on which recorded.	Highest maximum temperature previously recorded in February.	Year in which recorded.
	°		°	
Rawalpindi	82·4	26th	82·0	1887
Umballa	90·0	20th	87·0	1897
Sialkot	86·6	27th	83.7	1879

Maximum temperatures exceeding 100° were recorded at Surat and Cuddapah (each 100° 7).

The variations of the mean minimum or night temperature from the normal were generally much smaller than

those of the maximum temperature. The mean minimum temperature of the month was above the normal in Lower Burma, the Konkan, the Bombay Deccan, the western and central districts of the Central Provinces, the south-western districts of the United Provinces, East Rajputana, the East Punjab and locally at Hazaribagh, Ranchi and Peshawar. It was more than 2° above the normal at the stations for which data are given below :—

Station.	Mean minimum temperature.		
	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Saugor	58·7	55·4	+3·3
Indore	55·0	52·1	+2·9
Jhansi	57·8	55·4	+2·4
Bassein	67·9	64·9	+3·0
Diamond Island	74·8	72·3	+2·5

Over the remainder of India the mean minimum temperature was below the normal, but the variations nowhere exceeded 2°, except locally at Dinajpur (—3°·2), Dera Ismail Khan (—2°·7), Darbhanga (—2°·6), Cawnpore (—2°·4), Jacobabad (—2°·3), Masulipatam (—2°·2), Jessore (—2°·1) and Khushab (—2°·1).

The night temperature was more or less above the normal at the hill stations in Upper India (with the exception of Srinagar).

The following gives data :—

Hill Station.	Mean minimum temperature.		
	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Leh	14·9	9·8	+5·1
Simla	40·5	35·6	+4·9
Murree	39·1	34·5	+4·6
Chakrata	40·1	36·1	+4·0
Ranikhet	44·2	40·8	+3·4
Mussooree	40·8	37·7	+3·1
Gilgit	38·9	36·6	+2·3
Srinagar	26·2	27·3	—1·1

The night temperature was, on the other hand, in defect in Baluchistan by moderate amounts.

The lowest night temperatures of the month were generally recorded during the first ten days of the month. They were not remarkably low. The following table gives the most noteworthy and the lowest hitherto recorded at the same stations in February :—

Station.	Lowest minimum temperature recorded in February 1902.	Date on which recorded.	Lowest minimum temperature previously recorded in February.	Year in which recorded.
	°		°	
Dras	—25·9	3rd	—33·9	1901
Minimarg	—6·0	8th	—5·0	1901
Kashgar	—4·2	5th	—7·7	1900
Sonemarg	—3·4	1st	...	...
Leh	5·0	8th	—10·0	1885
Kalat	5·4	2nd	1·4	1895
Yatung	16·9	9th	11·9	1896
Srinagar	17·1	8th	—3·9	1895
Skardu	18·1	3rd and 4th.	—4·0	1897
Quetta	16·8	2nd	11·8	1893
Kabul	18·8	7th	5·0	1896
Teheran	20·0	2nd	15·5	1898
Ispahan	19·1	5th	10·6	1898
Baghdad	33·7	3rd	30·0	1893
Dera Ismail Khan	31·5	1st	28·0	1883
Kushab	31·4	,,	33·1	1892 and 1893
Peshawar	34·4	2nd	29·2	1883
Montgomery	34·5	,,	32·3	1893
Jacobabad	35·0	1st	29·0	1887
Rawalpindi	33·0	3rd		1887
Umballa	34·0	9th	39·0	1894
Roorkee	34·8	6th	33·8	1891
Simla	33·1	7th	19·7	1883
Mussooree	35·0	10th	21·0	1891
Murree	30·5	2nd	16·7	1886
Cherat	37·0	14th	25·6	1893
Darjeeling	30·5	10th	19·9	1883

The mean daily temperature of the month was generally below the normal in Burma, Mysore, Madras, Orissa and the eastern districts of the Central Provinces. The

variations were less than 1½° in amount except at the stations for which comparative data are given below:—

Station.	Mean daily temperature. Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Toungoo	74·3	76·1	—1·8
Pamban	78·2	80·0	—1·8
Hassan	70·4	72·1	—1·7
Cuddapah	80·5	82·1	—1·6

The mean daily temperature was above the normal over the remainder of the country. The excess was more than 2° over the whole of North-Western India and Baluchistan and was more than 4° in a part of that area defined by the stations for which comparative data are given below:—

Station.	Mean daily temperature. Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Rawalpindi	58·4	53·1	+5·3
Sialkot	63·0	57·8	+5·2
Peshawar	59·5	54·4	+5·1
Lahore	62·7	58·4	+4·3
Khushab	61·5	57·4	+4·1

The mean temperature was even more largely in excess at the hill stations in the Western Himalayas than in the neighbouring plains.

The following gives comparative data for six stations:—

Hill Station.	Mean daily temperature. Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Cherat	53·5	46·1	+7·4
Srinagar	41·8	34·8	+7·0
Leh	26·8	20·6	+6·2
Murree	47·4	41·2	+6·2
Simla	46·3	40·7	+5·6
Chakrata	48·8	43·7	+5·1

These abnormal temperature conditions extended westwards as far as Asiatic Turkey, as is shown by the following data:—

Station.	Mean daily temperature. Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	°	°	°
Bushire	62·1	59·3	+2·8
Ispahan	44·6	41·7	+2·9
Quetta	45·8	42·5	+3·3
Kabul	43·6	35·9	+7·7
Baghdad	60·6	52·5	+8·1

A noteworthy feature of the temperature conditions of the month was the unusually large diurnal range of temperature in North-Western India and Baluchistan, the areas in which the day temperature was excessive and the night temperature normal or in defect.

The following gives data for the divisions in which this feature was most marked:—

Province or Division.	Variation from normal of Mean maximum temperature, February 1902.	Mean minimum temperature, February 1902.	Daily range, February 1902.
	°	°	°
Baluchistan	+8·5	—1·9	+10·4
West Punjab	+8·1	—1·7	+9·8
North Punjab	+9·6	+0·8	+8·8
Sind	+6·0	—1·3	+7·3

The following summarizes the chief features of the temperature conditions of the month:—

(1) The mean maximum and minimum, and hence also the mean temperatures, were below the normal in Madras and Mysore. The variations were, however, generally less than 2° in amount.

(2) The mean maximum and minimum temperatures varied in opposite directions in Lower and Central Burma, the former being in defect and the latter in excess. The mean temperature was in very slight defect in that area.

(3) The maximum temperature was in large to very large excess in North-Western India and Baluchistan and the minimum temperature in slight defect in the same areas. The mean temperature of the month was hence above the normal over the whole of that area and the excess was marked in the Submontane Punjab and in Baluchistan where it ranged between 4° and 6°.

(4) Temperature was as largely in excess at the hill stations in Upper India as at the adjacent plains stations. The excess was absolutely greatest at Cherat (+7°.4).

(5) Temperature was almost as largely in excess in Asiatic Turkey Persia and Afghanistan as in India.

The following table gives mean temperature data of the month for the 56 meteorological divisions into which India is divided:—

Province.	Division.	Actual Temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	89·6	67·5	78·6	22·2	34·0	−1·1	−0·4	−0·7
	Lower Burma (Deltaic)	88·4	70·2	79·2	18·2	26·6	−4·0	+2·0	−6·0
	Central do.	89·2	60·1	74·7	29·1	44·1	−4·0	+0·5	−4·5
	Upper do.	87·1	57·2	72·1	29·9	43·5	−0·4	−0·5	+0·1
	Arakan	84·7	60·7	72·7	24·0	39·3	−0·1	−0·8	+0·7
Bengal and Assam	Eastern Bengal	83·0	56·7	69·9	26·3	40·8	+1·7	−0·7	+2·4
	Assam (Surma)	84·2	54·9	69·6	29·3	42·5	+3·5	−0·7	+4·2
	Do. (Brahmaputra)	75·9	54·0	65·0	21·8	37·6	+1·5	−0·9	+2·4
	Deltaic Bengal	84·3	58·1	71·2	26·2	43·8	+1·7	−1·0	+2·7
	Central do.	84·4	55·6	70·0	28·8	44·8	+2·7	−0·8	+3·5
	North do.	80·3	52·5	66·5	27·8	42·7	+2·3	+1·1	+1·2
	Bengal Hills	51·0	28·3	39·7	22·7	39·3	+3·2	+1·3	+1·9
	Orissa	85·7	64·2	75·0	21·5	35·1	+0·5	−1·4	+1·9
	Chota Nagpur	82·9	55·5	69·2	27·4	46·0	+1·6	+0·7	+0·9
	South Bihar	82·8	55·1	68·9	27·7	46·1	+2·1	−1·2	+3·3
	North do.	82·3	50·4	66·4	31·9	49·0	+4·5	−2·3	+6·8
United Provinces	United Provinces (East)	82·6	50·6	66·7	32·0	51·8	+2·3	−1·3	+3·6
	Oudh (South)	82·2	49·0	65·6	33·2	51·2	+3·4	−1·8	+5·2
	Do. (North)	81·3	50·2	65·8	31·1	49·5	+4·6	−0·5	+5·1
	United Provinces (Central)	82·2	52·0	67·2	30·2	48·0	+3·3	−0·3	+3·6
	Do. do. (West)	81·4	50·6	66·0	30·9	48·5	+4·9	+0·2	+4·7
	Do. do. (East Submontane)	82·1	51·7	66·9	30·4	47·4	+4·1	−0·9	+5·0
	Do. do. (West do.)	78·2	47·5	62·9	30·8	49·4	+5·5	+0·6	+4·9
	Do. do. (Hills)	57·4	41·0	49·2	16·4	29·5	+5·0	+3·5	+1·5
Punjab and North-West Frontier Province.	Punjab (South-East)	79·0	52·5	65·8	26·5	43·1	+4·2	+0·7	+3·5
	Do. (South)	79·5	46·8	63·2	32·7	51·7	+5·6	+0·3	+5·3
	Do. (Central)	80·0	45·3	62·7	34·7	51·9	+7·3	+1·2	+6·1
	Do. (Submontane)	78·9	46·8	62·9	32·1	50·9	+7·7	+0·9	+6·8
	Do. (Hills)	49·5	27·2	38·4	22·4	45·1	+9·2	+3·7	+5·5
	Do. (North)	75·1	42·8	59·0	32·3	48·3	+9·6	+0·8	+8·8
	Do. (West)	79·9	44·6	62·2	35·3	53·8	+8·1	−1·7	+9·8
Bombay and Malabar Coast Districts (Madras).	Malabar	88·7	72·9	80·8	15·8	23·1	+0·2	+0·3	−0·1
	Madras (South Central)	90·7	65·0	77·9	25·7	38·0	−2·2	−0·5	−1·7
	Coorg	80·8	59·1	70·0	21·7	29·9	−0·4	+0·3	−0·7
	Mysore	86·6	60·7	73·7	26·0	36·2	−0·6	−0·6	0
	Konkan	86·5	70·1	78·3	16·5	28·0	+1·7	+0·9	+0·8
	Bombay Deccan	91·7	61·8	76·7	29·9	43·7	+1·1	+0·7	+0·4
	Hyderabad (North)	90·3	60·6	75·7	29·8	42·8	...	...	...
	Khandesh	91·6	56·9	74·2	34·7	50·4	+2·6	+1·6	+1·0
Central Provinces and Berar.	Berar	92·4	61·6	77·0	30·8	45·6	+2·2	+1·6	+0·6
	Central Provinces (West)	89·7	57·9	73·7	31·8	49·7	+1·9	+0·6	+1·3
	Do. (Central)	86·5	55·4	71·0	31·1	50·5	+2·2	+0·6	+1·6
	Do. (East)	88·6	58·1	73·4	30·5	50·3	+0·8	−1·8	+2·6
Bombay (North)	Gujarat	92·6	62·0	77·3	30·7	46·6	+4·7	+1·9	+2·8
	Kathiawar and Cutch	86·5	58·1	72·3	28·4	44·0	+3·1	−0·4	+3·5
	Sind	85·5	52·4	68·9	33·1	52·9	+6·0	−1·3	+7·3
	Baluchistan Hills	62·4	27·9	45·2	34·5	61·3	+8·5	−1·9	+10·4
Rajputana and Central India.	Central India (East)	83·5	52·7	68·2	30·7	51·1	+2·4	+1·1	+1·3
	Rajputana (East), Central India (West)	85·1	52·0	68·6	33·1	53·0	+4·8	+1·3	+3·5
	Do. (West)	84·8	51·1	67·9	33·7	52·6	...	...	...
Madras	East Coast (North)	84·3	67·9	76·1	16·4	28·1	−0·6	−1·3	+0·7
	Hyderabad (South)	91·5	64·4	78·0	27·1	40·5	−0·8	−0·7	−0·1
	Madras (Central)	94·0	64·7	79·4	29·3	40·8	−0·8	−1·4	+0·6
	East Coast (Central)	87·6	67·2	77·4	20·5	32·6	−1·2	−1·6	+0·4
	Do. (South)	86·4	68·3	77·4	18·1	28·6	−1·3	−0·4	−0·9
	Madras (South)	88·9	68·7	78·7	20·2	30·5	−1·8	−0·9	−0·9

The following gives a brief account of the more important changes of the temperature conditions of the month :—

At the commencement of the month a warm wave was affecting Bengal and temperature was hence in moderate to considerable excess over that area. Temperature was, on the other hand, in more or less considerable defect in Baluchistan and North-Western India due to the influence of the disturbed weather of the last four days of the previous month.

Temperature conditions differed little from the normal over the remainder of the country. The following variation data for the 24 hours ending 8 A.M. of the 1st show the temperature conditions obtaining at this time :—

Province or Division.	Variation from Normal of Mean maximum temperature, 1st February 1902.	Mean minimum temperature, 1st February 1902.	Mean daily temperature, 1st February 1902.
	°		°
Burma	0	—0·7	—0·4
Assam	+3·3	+4·2	+3·8
Bengal	+6·3	+4·1	+5·2
Orissa	+6·2	+1·7	+4·0
Bihar	+6·7	—2·8	+2·0
Chota Nagpur	+7·7	+1·7	+4·7
United Provinces of Agra and Oudh	+0·3	—3·2	—1·5
Punjab	+1·0	—6·1	—2·6
Sind	—3·0	—6·7	—4·9
Rajputana	—3·3	—5·0	—4·2
Gujarat	—3·9	—2·2	—3·1
Central India	—2·6	—2·9	—2·8
Central Provinces	+1·9	—0·7	+0·6
Berar	+0·2	+0·5	+0·4
West Coast	—2·4	—1·0	—1·7
Bombay Deccan	+0·6	—1·2	—0·3
Mysore	—0·6	—1·3	—1·0
Madras Coast	—0·6	—2·2	—1·4
Madras Deccan	+0·4	—0·8	—0·2
South India	—1·7	—4·5	—3·1

The area of greatest excess of temperature which was in West Bengal on the 1st was displaced eastwards into East Bengal on the 2nd and Upper Burma on the 3rd. The succeeding cool wave advanced slowly eastwards and southwards and also intensified to some extent from the 3rd to the 5th. The following variation data indicate the progress of the two waves :—

Date.	Warm wave. Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.	Cool wave. Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°		°
2nd	Chittagong	+ 4·8	Hyderabad (S)	—5·2
2nd	False Point	+ 4·3	Bikaner	—4·9
3rd	Mandalay	+ 4·5	Nowgong	—6·4
3rd	Bhamo	+ 3·6	Jubbulpore	—6·4
3rd	Kindat	+ 2·7	Hoshangabad	—5·2
4th	.....	...	Chanda	—6·7
4th	.....	...	Jessore	—5·8
5th	.....	...	Sambalpur	—6·1
5th	.....	...	Jessore	—5·9

The lowest minimum temperatures of the month were recorded in Baluchistan, Sind and the West and North Punjab during this period. The most noteworthy were the following :—

Station.	Lowest minimum temperature recorded in February 1902.	Date on which recorded.
	°	
Kalat	5·4	2nd
Pishin	10·0	1st and 2nd
Quetta	16·8	2nd
Peshawar	34·4	2nd
Khushab	31·4	1st
D. I. Khan	31·5	1st
Murree	30·5	2nd

A second warm wave appeared in Baluchistan on the 3rd and extended during the next two days across the North-West Frontier into the Punjab, Rajputana and North Bombay, beyond which, however, it did not advance. Temperature increased rapidly during the 5th in North-Eastern India and diminished equally rapidly in North-West India, so that approximately normal temperature conditions obtained over the Indian area on the morning of the 6th. This is shown by the following table giving

the variations of the temperature conditions of the 24 hours preceding 8 A.M. of the 6th from the normal :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 6th February.	Mean minimum temperature, 6th February.	Mean daily temperature, 6th February.
	°	°	°
Burma	−0·2	+1·4	+0·6
Assam	−0·4	−1·9	−1·2
Bengal	−0·3	−1·5	−0·9
Orissa	−0·1	−1·9	−1·0
Bihar	+2·4	−2·1	+0·2
Chota Nagpur	−0·2	−1·6	−0·9
United Provinces of Agra and Oudh	+3·9	−4·2	−0·2
Punjab	+5·8	−3·5	+1·2
Sind	+4·8	−5·2	−0·2
Rajputana	+4·5	−4·1	+0·2
Gujarat	+3·5	−3·5	0
Central India	+1·8	−3·0	−0·6
Central Provinces	+2·5	−3·5	−0·5
Berar	+3·1	−0·6	+1·3
West Coast	+2·1	−0·8	+0·7
Bombay Deccan	+3·9	−1·3	+1·3
Mysore	+0·4	−1·5	−0·6
Madras Coast	−0·9	−1·6	−1·3
Madras Deccan	+1·4	+0·1	+0·8
South India	−2·1	−3·4	−2·8

On the 7th a cool wave of feeble intensity began to affect Baluchistan. It spread quickly across Northern India, thus emphasizing the deficiency of temperature already obtaining in that area. Temperature was hence in considerable to large defect on the 9th over a broad belt stretching from Sind across the head of the Peninsula to Assam and Upper Burma.

The decreased temperature in this area was due mainly to unusually low night temperature, whilst the day temperature was normal or over. The diurnal range of temperature was hence unusually large, more especially in Upper India. This feature was most marked on the 11th. The following gives data for that day in illustration :—

Province or Division.	Variation from normal of		
	Mean maximum temperature 11th February 1902.	Mean minimum temperature, 11th February 1902.	Diurnal range of temperature.
	°	°	°
Sind	+7·5	−6·0	+13·5
Punjab	+8·3	−4·8	+13·1
Rajputana	+6·9	−4·6	+11·5
United Provinces of Agra and Oudh	+2·2	−5·7	+7·9
Central Provinces	−1·9	−8·9	+7·0

Temperature was, on the other hand, practically normal in the Peninsula with the exception of Gujarat, the North Konkan and the Bombay Deccan where it was from 3° to 8° above the normal. During the next four or five days the temperature changes favoured the extension and intensification of the area of increased temperature and the diminution of the area of deficient temperature, with the result that on the 15th temperature was more or less above the normal over the whole of India with the exception of the eastern half of the Peninsula, where it was normal or in slight to moderate defect. The excess was most marked in North-Western India and Baluchistan, where it generally varied between 5° and 8°, and was absolutely greatest at Indore (10°·2). The following variation data illustrate the conditions prevailing on this day :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 15th February.	Mean minimum temperature, 15th February.	Mean daily temperature, 15th February.
	°	°	°
Burma	−2·7	−0·1	−1·4
Assam	+2·9	−0·8	+1·1
Bengal	+1·5	−0·5	+0·5
Orissa	−1·0	−3·7	−2·4
Bihar	+4·7	−0·9	+1·9
Chota Nagpur	+2·7	+1·1	+1·9
United Provinces of Agra and Oudh.	+7·0	+2·0	+4·5
Punjab	+9·3	−0·7	+4·3
Sind	+6·9	−1·2	+2·9
Rajputana	+9·1	+2·4	+5·8
Gujarat	+6·6	+3·1	+4·9
Central India	+6·4	+8·0	+7·2
Central Provinces	+2·7	+2·9	+2·8
Berar	+1·8	+6·3	+4·1
West Coast	+2·2	+2·4	+2·3
Bombay Deccan	+1·2	+4·1	+2·7
Mysore	−4·5	+3·6	−0·5
Madras Coast	−2·1	−0·7	−1·4
Madras Deccan	−2·2	−0·7	−1·5
South India	−5·0	+2·6	−1·2

The data are very interesting as they show that the excess of temperature in North-West India was due mainly to the unusually high day temperature and in Central India to excessive night temperature. Skies were free from cloud and the air unusually dry in the former area, thus favouring rapid radiation by night. On the other hand, in the central parts of the country skies were more or less thickly clouded and the radiation (and the consequent cooling) at night was necessarily slow.

The changes of weather during the remainder of the month were not sufficiently large to modify the general

character of the temperature conditions, the chief features of which hence continued to be excessive temperature in Northern and Central India and decreased temperature in the Peninsula. These abnormal features were on the whole most pronounced on the 20th, data for which are given below :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 20th February.	Mean minimum temperature, 20th February.	Mean daily temperature, 20th February.
	°	°	°
Burma	+0·3	−0·4	−0·1
Assam	+5·5	+1·8	+3·7
Bengal	+5·4	+2·7	+4·1
Orissa	+3·6	−0·9	+1·4
Bihar	+8·9	+5·4	+7·2
Chota Nagpur	+7·5	+8·0	+7·8
United Provinces of Agra and Oudh.	+7·7	+8·2	+8·0
Punjab	+9·7	+7·5	+8·6
Sind	+5·1	+2·0	+3·6
Rajputana	+6·8	+5·0	+5·9
Gujarat	+0·4	+2·1	+1·3
Central India	+6·2	+5·8	+6·0
Central Provinces	+5·8	+4·2	+5·0
Berar	+4·7	+5·9	+5·3
West Coast	+1·2	+1·6	+1·4
Bombay Deccan	+2·3	+0·7	+1·5
Mysore	+0·5	−0·3	+0·1
Madras Coast	+0·4	−2·2	−0·9
Madras Deccan	−0·3	−1·4	−0·9
South India	−1·9	−2·5	−2·2

The excess was, it may be noted, as largely exhibited at the hill stations as in the adjacent plains. The following data from the 17th to the 20th for five representative stations illustrate this feature :—

HILL STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	17th February.	18th February.	19th February.	20th February.
	°	°	°	°
Leh	+10·5	+8·7	+12·1	+11·5
Srinagar	+11·8	+12·0	+12·2	+6·5
Murree	+10·2	+8·9	+10·1	+6·2
Cherat	+7·5	+9·0	+8·4	+10·0
Simla	+9·7	+9·9	+8·5	+4·1

The feebly disturbed weather of the 20th to the 23rd reduced temperature to some extent in Northern and Central India but with the passing away of the unsettled conditions temperature rose again and at the end of the month was almost as largely above the normal in North-West India as on the 20th. The excess ranged between 6° and 12° over Baluchistan and Upper India and was absolutely greatest at Leh (+13°·6). The following variation data indicate the conditions obtaining at the end of the month :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 28th February.	Mean minimum temperature, 28th February.	Mean daily temperature, 28th February.
	°	°	°
Burma	−0·5	+0·3	−0·1
Assam	+3·0	+0·7	+1·9
Bengal	+3·5	+3·3	+3·4
Orissa	+0·5	+4·5	+2·5
Bihar	+6·8	+2·1	+4·5
Chota Nagpur	+5·6	+4·1	+4·9
United Provinces of Agra and Oudh.	+7·0	+1·6	+4·3
Punjab	+9·3	+8·6	+9·0
Sind	+6·3	+5·0	+5·7
Rajputana	+8·9	+2·5	+5·7
Gujarat	+2·4	−0·8	+0·8
Central India	+3·6	+0·7	+2·2
Central Provinces	+3·6	−0·6	+1·5
Berar	+3·5	−1·8	+0·9
West Coast	+0·3	0	+0·2
Bombay Deccan	+2·7	−0·5	+1·1
Mysore	+1·7	−0·4	+0·7
Madras Coast	−0·5	+1·0	+0·3
Madras Deccan	+1·8	+0·1	+1·0
South India	+0·9	−1·5	−0·3

The highest temperatures of the month were generally recorded between the 26th and the 28th.

Winds.

Winds were, on the mean of the month, feebler and much less steady than usual at Port Blair and in Lower Burma.

The following data illustrate these features:—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage Febry. 1902.	Normal percentage, Febry.	Variation of actual from normal, Febry. 1902.	Actual, Febry. 1902.	Normal, Febry.	Variation of actual from normal, Febry. 1902.
Port Blair	53	74	−21	109	121	−12
Diamond Island	52	85	−33	138	195	−57

The mean direction of the air movement varied greatly from the normal in both these areas, being much more easterly than usual at Port Blair and northerly at the coast stations of Burma.

The following gives data:—

Station.	Mean wind direction.	
	Actual, February 1902.	Normal, February.
	°	°
Port Blair	N 72 E	N 45 E
Diamond Island	N 18 W	N 32 W
Akyab	N	N 25 W

Winds were steadier but somewhat feebler than usual in Bengal and Orissa. They were much more northerly than usual in the interior of Bengal but were more westerly at the coast stations.

The following gives data in illustration:—

	Station.	Mean wind direction.	
		Actual, February 1902.	Normal, February.
		°	°
Coast station	Saugor Island	S 75 W	S 52 W
Interior station	Calcutta	N 69 W	S 89 W

Winds were considerably lighter and less steady than usual in Chota Nagpur and Bihar and, on the mean of the month, were somewhat more northerly than usual.

The following gives comparative data of the mean air movement and steadiness for the two stations in that area:—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, Febry. 1902.	Normal percentage, Febry.	Variation of actual from normal, Febry. 1902.	Actual, Febry. 1902.	Normal, Febry.	Variation of actual from normal, Febry. 1902.
Hazaribagh	43	55	−12	135	172	− 37
Darbhanga	34	47	−13	46	90	− 44

Winds were generally below their normal strength in the United Provinces, the Punjab and Sind. They were, however, much steadier than usual except in Sind and contained in general a strong westerly element.

The following gives data for direction and steadiness:—

Station.	Mean stradiness.			Mean wind direction.	
	Actual percentage February 1902.	Normal percentage February.	Variation of actual from normal, February 1902.	Actual, February 1902.	Normal February.
				°	°
Allahabad	33	34	− 1	N 69 W	N 63 W
Dehra Dun	49	28	+21	S 73 W	S 88 W
Roorkee	28	31	− 3	N 66 W	N 61 W
Meerut	53	50	+ 3	S 85 W	N 59 W
Lahore	41	31	+10	N 60 W	N 31 W
Ludhiana	52	40	+12	N 62 W	N 50 W
Peshawar	16	9	+ 7	N 7 E	N 9 W
Jacobabad	13	24	−11	N 39 W	N 21 E
Kurrachee	15	20	− 5	S 75 W	N 69 W

Winds were practically of normal intensity in Rajputana. The mean direction of the air movement varied irregularly from the normal but was on the whole more northerly than usual.

The following gives comparative data of the mean air movement and steadiness over Northern India during the month :—

PROVINCE OR DIVISION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, Febry. 1902.	Normal percentage, Febry.	Variation, of actual from normal, February 1902.	Actual, Febry. 1902.	Normal, Febry.	Variation of actual from normal, February 1902.
Bengal . . .	34	24	+10	123	126	— 3
Orissa . . .	25	17	+ 8	155	191	—36
Chota Nagpur .	43	55	—12	135	172	—37
Bihar . . .	34	47	—13	46	90	—44
United Provinces of Agra and Oudh.	41	36	+ 5	58	68	—10
Punjab . . .	36	27	+ 9	51	60	— 9
Sind . . .	14	22	— 8	103	160	—57
Rajputana . .	14	34	—20	80	93	—13

The air movement was much more irregular than usual in Berar and the Central Provinces. It varied little in strength from the normal, but the winds were exceedingly variable and the mean wind direction contained a southerly instead of the normal northerly component.

The following gives data for four stations :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, February 1902.	Normal percentage, February.	Variation of actual from normal, February 1902.	Actual, February 1902.	Normal, February.	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
				°	°			
Akola . . .	9	23	—14	S 62 E	N 14 W	102	98	+ 4
Buldana . . .	14	27	—13	S 35 W	N 17 W	165	147	+18
Khandwa . . .	9	31	—22	S 13 W	N 14 W	124	93	+31
Nagpur . . .	16	22	— 6	S 46 E	N 42 E	96	123	—27

Winds were unusually steady in the Bombay Deccan and were more easterly than the normal as was also the case in the M dras Deccan.

The following gives data for three representative stations :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		
	Actual, percentage, February 1902.	Normal, percentage, February.	Variation of actual from normal, February 1902.	Actual, February 1902.	Normal, February.	Easterly deflection.
				°	°	
Belgaum . . .	55	14	+41	S 68 E	S 62 E	+ 6
Sholapur . . .	58	24	+34	S 60 E	S 43 E	+17
Bellary . . .	61	47	+14	S 63 E	S 57 E	+ 6

The velocity varied slightly and irregularly from the normal at these stations.

The air movement was of the normal character on the West Coast. On the Madras Coast, as represented by Madras, the winds were much steadier than usual and blew from east-by-north instead of from east-by-south.

The following gives comparative data of the air movement in the Central Provinces and the Peninsula : —

STATION.	MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
Central Provinces	110	108	+ 2
Berar	134	123	+11
Bombay Deccan	242	206	+36
Madras Deccan	97	95	+ 2
West Coast	163	170	— 7
Madras Coast	118	119	— 1
Mysore	161	138	+23
South India	113	128	—15

Winds were more or less above their normal strength at the stations in the Western Himalayas. They were also much steadier than usual at the majority of stations. Winds were, on the other hand, very unsteady at Pachmarhi and Chikalda.

The following gives comparative data for four stations :—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, February 1902.	Normal percentage, February.	Variation of actual from normal, February 1902.	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
Leh	69	23	+46	64	29	+35
Chakrata . . .	48	2	+46	216	134	+82
Ranikhet . . .	46	20	+26	76	57	+19
Pachmarhi . . .	14	25	—11	123	98	+25

A noteworthy feature of the air movement was the unusual strength of the winds at Aden and Perim, more especially during the period from the 20th to the 25th. The mean velocity of the wind during this period at Perim was 31 miles per hour.

It may be noted that winds were normal in direction at Zanzibar but were somewhat stronger than usual. They were, on the other hand, more northerly than usual at the Seychelles, their mean direction being N. 4° E., instead of N. 27° W., the normal direction of the month.

It has already been pointed out that gradients for north-east monsoon winds were above their normal intensity in consequence of increased pressure over the Persian area, South-East Russia and Northern India. The air movement in the Indian Seas was stronger than usual, and was hence in full accordance with the abnormal pressure conditions.

The following gives the chief features of the mean air movement of the month.

(*a*) Winds were lighter and less steady than usual over the Bay Islands and Burma Coast and contained a strong northerly component in the latter area.

(*b*) Winds were more westerly than usual at the head of the Bay and less westerly and more northerly at the inland stations.

(*c*) Winds were less steady and weaker than usual in Chota Nagpur and Bihar.

(*d*) Winds were steadier than usual in the United Provinces and the Punjab and were more westerly than usual in that area as well as in Sind.

(*e*) Winds were unusually unsteady in the Central Provinces and Berar and contained an abnormal southerly element.

(*f*) Winds were considerably steadier than the normal in the Deccan and Mysore and blew more directly from the east than usual.

(*g*) The air movement was more vigorous than usual in the Arabian Sea and Bay of Bengal. Winds were unusually strong at Aden and Perim.

Humidity and Cloud.

The air was somewhat damper than usual over the Bay Islands, the Coromandel Coast districts, South India and the Madras Deccan. The variations from the normal were, however, now here large, and exceeded 5 only at the two stations for which data are given below :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	"	"	"	%	%	
Salem . . .	·655	·563	+·092	69	58	+11
Bellary . . .	·460	·389	+·071	47	40	+ 7

The mean humidity of the month was also in slight excess locally at Srinagar in Kashmir and at Rangoon in Lower Burma.

The air was drier than usual over the remainder of the country including the whole of Northern and Central India. The deficiency ranged between 5 and 23 over the greater part of the area and was most pronounced at the stations for which comparative data are given below :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, February 1902.	Normal, February.	Variation of actual from normal, February. 1902.	Actual, February 1902.	Normal, February.	Variation of actual from normal, February. 1902.
	"	"	"	%	%	
Ludhina . .	·211	·303	—·092	41	64	—23
Dehra Dun . .	·199	·283	—·084	39	62	—23
Peshawar . .	·195	·233	—·038	38	58	—20
Roorkee . .	·203	·291	—·088	41	61	—20
Meerut . . .	·208	·294	—·086	39	58	—19
Lahore . . .	·218	·282	—·064	40	58	—18
Deesa . . .	·140	·229	—·089	17	30	—13
Calcutta . . .	·390	·468	—·078	52	65	—13
Buldana . .	·182	·277	—·095	21	34	—13
Nagpur . .	·258	·337	—·079	31	42	—11

The air was also excessively dry in Baluchistan, the Simla and Mussooree hills and at Leh in Ladakh, and was slightly drier at Darjeeling in the Eastern Himalayas.

The following gives comparative data for this area of abnormal dryness :—

Hill Station.	Absolute Humidity.			Relative Humidity.		
	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.	Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
	"	"	"	%	%	
Leh	·053	·076	—·023	39	68	—29
Chakrata . . .	·134	·163	—·029	41	63	—22
Simla	·114	·152	—·038	38	58	—20
Ranikhet . . .	·161	·196	—·035	43	62	—19
Quetta . . .	·134	·166	—·032	47	66	—19

The data of the preceding two tables show that the amount of aqueous vapour contained in the air was very largely below the normal in the region of diminished relative humidity. A reference to the temperature variation chart indicates that temperature was approximately normal over the Peninsula, Burma and North-Eastern India and in moderate to large excess over North-Western and Central India and Baluchistan, the excess being on the whole most marked in the Western Himalayas and the neighbouring plains districts.

The unusual dryness of the air in the Indian area was hence in part a temperature effect but chiefly a result of the diminished amount of aqueous vapour in the air.

There were two very dry periods in Northern and Central India during the month. The first lasted from the 1st to 9th when abnormally low humidities were recorded.

The following gives the most noteworthy examples of the dryness of the air during this period : —

Station.	Date.	Hour.	Lowest humidity recorded during period 1st to 9th February 1902.
			%
Jamnagar . . .	3rd February . .	4 P.M. . .	1
Deesa	8th ,, . .	10 A.M. . .	4
Meerut	2nd ,, . .	4 P.M. . .	4
Jamnagar . .	1st ,, . .	,, . .	5
	4th ,, . .	,, . .	6
Deesa	1st ,, . .	,, . .	6
Roorkee . . .	7th ,, . .	,, . .	7
Deesa	2nd ,, . .	,, . .	7
Jamnagar . . .	,, ,, . .	,, . .	8
Deesa . . .	7th ,, .	10 A.M. . .	8
	9th ,, . .	4 P.M. . .	8
Hazaribagh . . .	3rd ,, .	,, . .	8
Deesa	,, ,, . .	,, . .	9
Peshawar . . .	5th ,, . .	10 A.M. . .	9

The second period was from the 15th to the 28th during the greater part of which period strongly marked anti-cyclonic conditions with unusually high temperature obtained in Northern and Central India.

The following gives the lowest humidities recorded during the period :—

Station.	Date.	Hour.	Lowest humidity recorded during period 15th to 28th February 1902.
			%
Deesa	25th February .	4 P.M. . .	7
	17th ,, .	,, . .	8
	26th ,, .	,, . .	8
Roorkee	25th ,, .	,, . .	8
Deesa . . .	15th ,, .	,, . .	9
	18th ,, .	,, . .	9
Buldana . . .	26th ,, .	,, . .	9
	27th ,, .	,, . .	9
	,, ,, .	,, . .	9
	28th ,, .	,, . .	10
Akola	25th ,, .	,, . .	11
Roorkee . . .	26th ,, .	,, . .	11
	27th ,, .	,, . .	11
Dehra Dun . . .	18th ,, .	,, . .	12
Roorkee . . .	,, ,, .	,, . .	12
Buldana . .	22nd ,, .	,, . .	12

It may be noted that the abnormal humidity conditions were almost as strongly marked in Persia as in the Indian area.

The chief features of the humidity conditions of the month were hence as follows :—

(1) The air was damper than usual over the Bay Islands, the Coromandel Coast districts, South India, the Madras Deccan and locally at Rangoon and Srinagar. The excess was most marked at Salem (+11) and Bellary (+7).

(2) The air was drier than usual over the remainder of the country, including the whole of Northern and Central India, Burma and Baluchistan. The deficiency was more than 5 over the greater part of that area and was most pronounced in the Western Himalayas and the adjacent submontane districts.

(3) The abnormal humidity conditions extended westwards as far as Persia and Asiatic Turkey.

The variations of the amount of cloud from the normal were similar in general character to those of humidity. Cloud was above the normal to the south of a line joining Veraval, Hoshangabad, Hazaribagh, Calcutta, Akyab and Toungoo. The excess was small over the greater part of

the area but exceeded 1·0 at the stations for which data are given below:—

STATION.	MEAN CLOUD AMOUNT. Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
Mysore	3·9	1·4	+2·5
Rangoon	3·4	1·9	+1·5
Port Blair	4·2	2·8	+1·4
Belgaum	2·6	1·2	+1·4
Bombay	2·5	1·2	+1·3
Khandwa	2·6	1·4	+1·2
Bellary	2·6	1·4	+1·2
Sholapur	2·6	1·5	+1·1

The area of the greatest excess of cloud hence included the Bombay Deccan, Konkan, the Andamans, the part of Lower Burma as represented by Rangoon and a part of Mysore.

Cloud was more or less in defect to the north of the line defined above. The deficiency was insignificant in Bengal, the greater part of the United Provinces and the West Punjab. It was, on the other hand, large and marked in the East Punjab and the north-western districts of the United Provinces, as is shown by the following comparative data:—

STATION.	MEAN CLOUD AMOUNT. Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
Ludhiana	1·6	4·3	−2·7
Dehra Dun	2·0	4·3	−2·3
Roorkee	1·1	3·4	−2·3
Lahore	1·6	3·7	−2·1
Meerut	0·9	2·9	−2·0

Cloud was also as largely in defect at the hill stations in Upper India as in the adjacent plains. The following gives comparative data for these stations:—

HILL STATION.	MEAN CLOUD AMOUNT. Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
Srinagar	3·7	6·8	−3·1
Ranikhet	1·5	4·5	−3·0
Leh	4·3	6·8	−2·5
Simla	3·3	5·7	−2·4
Chakrata	2·6	4·7	−2·1

The area of greatest defect of cloud hence practically coincided with the area of greatest dryness of the air.

Skies were most serene during the month at the following stations at which the mean cloud amount of the month was less than 1·0:—

STATION.	MEAN CLOUD AMOUNT. Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
Meerut	0·9	2·9	−2·0
Deesa	0·8	2·4	−1·6
Darbhanga	0·6	1·6	−1·0

There was somewhat less cloud than usual in Baluchistan, Persia, Arabia and at the Seychelles, as is shown below:—

STATION.	MEAN CLOUD AMOUNT. Actual, February 1902.	Normal, February.	Variation of actual from normal, February 1902.
Quetta	3·1	4·2	−1·1
Aden	3·5	3·9	−0·4
Perim	1·3	2·4	−1·1
Seychelles	5·9	6·5	−0·6
Jask	1·3*	2·5	−1·2
Teheran	3·2*	3·9	−0·7

* 8 A.M. data.

The following gives the chief abnormal features of the cloud distribution of the month:—

(1) There was more cloud than usual over the whole of the Peninsula, Lower Burma and the Bay Islands. The excess was insignificant at the great majority of stations. It equalled 2·5 only at Mysore where it was greatest.

(2) Cloud was in defect in the remainder of the Indian area. The defect was most marked in the East Punjab and the adjacent districts of the United Provinces where it ranged between 2·0 and 3·0.

(3) Cloud was also largely in defect in the Western Himalayas, the deficiency being greatest at Srinagar (−3·1).

(4) Cloud was in moderate to considerable defect in Baluchistan, Persia, Arabia and the Equatorial Belt as represented by the Seychelles.

Rainfall.

February, 1902, was abnormally dry over by far the greater part of the country, more especially Baluchistan, the hill and submontane districts of North-Western India and Assam and the rainfall of the period was scanty and below the normal in 52 out of the 54 rainfall divisions, for which normal data are available. In this respect the month was unique during the past 25 years, February, 1883, alone resembling it.

The rainfall of the month was absolutely or practically *nil* (*i.e.*, less than a tenth of an inch in total amount) in Central and Upper Burma, Arakan, the plains of Bengal, the Assam Hills, Orissa, Bihar, Oudh, the United Provinces (West and East Submontane), the Punjab Plains, North Bombay, Rajputana, Central India (West) and the whole of the Peninsula excluding Coorg, Travancore, Madras (South and South-Central), East Coast South and the Central Provinces (Central). It was less than half an inch in total amount over the whole of the area of rainfall with the exception of the following divisions, *viz.*, Assam (Brahmaputra) (0·58 inch), the Punjab Hills (0·72 inch) and East Coast (South) (0·75 inch).

As the normal rainfall of February is small over the greater part of the plains of India, the actual deficiency was small. It was, however, the continuation of a feature characteristic of the previous two months and hence accentuated the prevailing drought.

The rainfall in Northern and Central India occurred mainly during the period, 15th to the 23rd, and was due to a depression which originated in Gujarat and thence passed into the eastern districts of the United Provinces. Southern India, on the other hand, received rain between the 13th and 15th when strong north-east winds obtained in the Bay and were determined across the South Madras Coast.

The following table gives mean actual, mean normal and variation rainfall data of 56 meteorological provinces or divisions for February 1902 :—

Province.	Division.	Number of rainy days.		Rainfall		
		Average actual, February 1902.	Average normal, February.	Average actual, February 1902.	Average normal, February.	Variation of actual from normal, February 1902.
				Inch.	Inches.	Inches.
Burma	Tenasserim	0·7	0·8	0·43	0·48	−0·05
	Lower Burma (Deltaic)	0·8	0·3	0·39	0·20	+0·19
	Central do.	0·1	0·1	0·05	0·08	−0·03
	Upper do.	0·3	0·6	0·08	0·22	−0·14
	Arakan	0·1	0·2	0·01	0·14	−0·13
Bengal and Assam	Eastern Bengal	0	1·6	0·01	0·99	−0·98
	Assam (Surma)	0·3	3·1	0·16	1·84	−1·68
	Do. (Hills)	0·1	2·9	0·03	1·36	−1·33
	Do. (Brahmaputra)	1·7	3·4	0·58	1·34	−0·76
	Deltaic Bengal	0	1·6	0	1·07	−1·07
	Central do.	0	1·4	0·02	0·73	−0·71
	North do.	0	1·2	0·01	0·54	−0·53
	Bengal Hills	0·7	2·0	0·21	0·79	−0·58
	Orissa	0	1·3	0·01	0·77	−0·76
	Chota Nagpur	1·0	1·5	0·40	0·78	−0·38
	Bihar (South)	0·1	1·5	0·04	0·67	−0·63
	Do. (North)	0	1·1	0·01	0·45	−0·44
United Provinces of Agra and Oudh.	United Provinces (East)	0·5	1·1	0·14	0·48	−0·34
	Oudh (South)	0·3	0·9	0·06	0·39	−0·33
	Do. (North)	0·1	1·2	0·03	0·50	−0·47
	United Provinces (Central)	0·8	0·8	0·18	0·37	−0·19
	Do. do. (West)	0	1·2	0	0·50	−0·50
	Do. do. (Submontane, East)	0·1	1·2	0·02	0·51	−0·49
	Do. do. (Do. West)	0·5	2·2	0·28	1·26	−0·98
	Do. do. (Hills)	1·0	4·2	0·49	2·52	−2·03

Province.	Division.	Number of rainy days. Average actual, February 1902.	Number of rainy days. Average normal, February.	Rainfall. Average actual, February 1902.	Rainfall. Average normal, February.	Rainfall. Variation of actual from normal, February 1902.
				Inch.	Inches.	Inches.
Punjab and North-West Frontier Province.	Punjab (South-East)	0·1	0·9	0·01	0·41	−0·40
	Do. (South)	0·1	1·1	0·03	0·43	−0·40
	Do. (Central)	0·3	2·0	0·09	0·89	−0·80
	Do. (Submontane)	0·2	2·4	0·04	1·34	−1·30
	Do. (Hills)	1·4	4·5	0·72	3·19	−2·47
	Do. (North)	0·4	2·8	0·08	1·60	−1·52
	Do. (West)	0	1·1	0	0·45	−0·45
Bombay and Malabar Coast Districts (Madras).	Malabar	0·3	0·3	0·09	0·21	−0·12
	Travancore	0·3		0·12		
	Madras (South Central)	0·4	0·6	0·11	0·34	−0·23
	Coorg	0·6		0·47		
	Mysore	0	0·1	0	0·07	−0·07
	Konkan	0	0·1	0	0·05	−0·05
	Bombay Deccan	0	0·2	0	0·09	−0·09
	Khandesh	0	0·3	0	0·11	−0·11
Central Provinces and Berar.	Berar	0	0·6	0	0·23	−0·23
	Central Provinces (West)	0·1	0·6	0·02	0·27	−0·25
	Do. do. (Central)	0·4	0·8	0·14	0·48	−0·34
	Do. do. (East)	0·1	0·9	0·03	0·47	−0·44
Bombay (North)	Gujarat	0	0·2	0	0·11	−0·11
	Kathiawar and Cutch	0	0·2	0	0·11	−0·11
	Sind	0	0·7	0	0·25	−0·25
	Baluchistan Hills	0·1	3·8	0·02	1·63	−1·61
Rajputana and Central India.	Central India (East)	0·9	0·8	0·37	0·41	−0·04
	Rajputana (East), Central India (West)	0·1	0·6	0·03	0·26	−0·23
	West Rajputana	0	0·3	0	0·13	−0·13
Madras	East Coast (North)	0	0·6	0	0·34	−0·34
	Madras Central	0	0	0	0·05	−0·05
	East Coast (Central)	0	0·1	0	0·19	−0·19
	East Coast (South)	1·0	0·6	0·75	0·45	+0·30
	Madras South	0·4	1·2	0·30	0·84	−0·54

Practically no rain fell in Arakan during the month. Numerous thundershowers occurred in Lower Burma and Tenasserim between the 3rd and the 12th and some scattered showers of little importance in Central Burma on the 12th and in Upper Burma from the 13th to the 16th or 17th. The total fall of the month exceeded the average in Lower Burma, but was less than the small normal of the month in the remaining divisions.

The Assam Valley obtained fairly general rain on the 6th and from the 21st to the 23rd and showers on the 1st, 7th, 8th, 15th, 26th and 27th. The falls were generally light, in no case exceeding 2 inches in amount in 24 hours. In the Surma Valley there were showers on the 1st, 7th and 23rd, but they were very light and irregularly distributed. The rainfall of the month was considerably to largely below the normal over the whole province.

The following gives comparative data for the eight plains districts of the province :—

District.	Rainfall. Average actual, February 1902.	Rainfall. Average normal, February	Rainfall. Variation of actual from normal, February 1902.	Rainfall. Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	0·21	2·01	−1·80	−90
Sylhet	0·09	1·68	−1·59	−95
Goalpara	0	0·58	−0·58	−10
Kamrup	0·19	0·81	−0·62	−77
Darrang	0·38	0·93	−0·55	−59
Nowgong	0·31	0·84	−0·53	−63
Sibsagar	0·70	1·79	−1·09	−61
Lakhimpur	1·73	2·63	−0·90	−34

Practically no rain fell in East and Deltaic Bengal. North Bihar and Orissa, and only some light showers of little importance in North Bengal. South Bihar obtained light sporadic showers on the 20th and 22nd and fairly general light rain on the 21st. A series of thunderstorms visited Chota Nagpur between the 20th and 23rd and gave numerous showers, heaviest and most general on the 22nd.

The following statement shows the distribution and variation from the normal of the rainfall of the month in this province:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, February 1902.	Average normal, February.	Variation of actual from normal, February 1902.	Percentage variation from normal.	Average actual, February 1902.	Average normal, February.
	Inch.	Inches.	Inches.			
East Bengal	0·01	0·99	—0·98	—99	0	1·6
Deltaic Bengal	0	1·07	—1·07	—100	0	1·6
Central Bengal	0·02	0·73	—0·71	—97	0	1·4
North Bengal	0·01	0·54	—0·53	—98	0	1·2
Bengal Hills	0·21	0·79	—0·58	—73	0·7	2·0
Orissa	0·01	0·77	—0·76	—99	0	1·3
Chota Nagpur	0·40	0·78	—0·38	—49	1·0	1·5
South Bihar	0·04	0·67	—0·63	—94	0·1	1·5
North Bihar	0·01	0·45	—0·44	—98	0	1·1

The data show that the rainfall of the month was more or less in defect over the whole province. The deficiency was greatest in percentage amount in Deltaic and East Bengal and Orissa.

The whole of the United Provinces with the exception of the Gonda, Bara Banki, Kheri, Lucknow, Hardoi, Mainpuri, Etah, Agra, Muttra, Aligarh, Bulandshahr, Meerut, Shahjahanpur, Budaun, Gorakhpur, Basti and Azamgarh districts obtained showers from the 16th to the 22nd. The showers were on the whole most general on the 20th and 21st. They were, however, generally light and exceeded one inch in amount in 24 hours only at the following stations:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Dehra Dun	Chakrata (obsy.)	20th February	1·36
Naini Tal	Kathgodam	,, ,,	1·08
	Naini Tal	,, ,,	1·06
Bijnor	Najibabad	21st ,,	3·00
	Nagina	,, ,,	2·19
Garhwal	Joshimath	,, ,,	1·82

The rainfall of the month was scanty and below the normal, more especially in the hill division which obtained a total of 0·49 inch or only 19 per cent. of its normal amount.

No rain fell over by far the greater part of the Punjab during the month. The submontane, hill and south-eastern districts received light showers from the 19th to the 21st. The rainfall of the month was in more or less serious defect over the whole province.

The following gives comparative data of the rainfall of the seven rainfall divisions of the province:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, February 1902.	Average normal, February.	Variation of actual from normal, February 1902.	Percentage variation from normal.	Average actual, February 1902.	Average normal, February.
	Inch.	Inches.	Inches.			
South-East Punjab	0·01	0·41	—0·40	— 98	0·1	0·9
South Punjab	0·03	0·43	—0·40	— 93	0·1	1·1
Central Punjab	0·09	0·89	—0·80	— 90	0·3	2·0
Punjab Submontane	0·04	1·34	—1·30	— 97	0·2	2·4
Punjab Hills	0·72	3·19	—2·47	— 77	1·4	4·5
North Punjab	0·08	1·60	—1·52	— 95	0·4	2·8
West Punjab	0	0·45	—0·45	—100	0	1·1

Baluchistan received some light local showers chiefly on the 4th, 16th and 17th. The rainfall of the month was very scanty and in large and serious defect.

There were two periods of disturbance in Kashmir, *viz*, from the 19th to the 21st and from the 26th to the 28th. Numerous showers occurred during these periods, but they were generally light, and the total precipitation of the month was probably in large defect.

No rain fell in the North-West Frontier districts with the exception of some light showers on the 28th. The total rainfall was hence below the normal over the whole province.

No rain fell in Rajputana beyond a few local showers in the Kotah, Jaipur and Jhalawar states between the 17th and 19th. The total fall of the month was hence more or less in defect over the whole province.

Central India obtained showers daily from the 15th to the 21st. Falls exceeding one inch in amount in 24 hours were recorded at several stations. The total rainfall of the month in the eastern states was almost identical with the normal.

The Narsingpur, Saugor, Damoh and Jubbulpore districts of the Central Provinces obtained a light burst of rain from the 15th to the 21st. Some light local showers also occurred in the eastern and western districts, chiefly during the last seven days of the month.

The following statement shows that the rainfall of the month was below the small normal of the period over the whole area :—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, February 1902.	Average normal, February.	Variation of actual from normal, February 1902.	Percentage variation from normal.	Average actual, February 1902.	Average normal, February.
	Inch.	Inch.	Inch.			
Central Provinces, West	0·02	0·27	—0·25	—93	0·1	0·6
„ „ Central	0·14	0·48	—0·34	—71	0·4	0·8
„ „ East	0·03	0·47	—0·44	—94	0·1	0·9

No rain fell during the month over the greater part of the Madras Presidency. Thunderstorms during the period, 13th to 15th, gave moderate rain in the East Coast (South) and light rain in the South and South-Central divisions and in Malabar. The thundershowers were heavy in the Tanjore, Trichinopoly and Madura districts on the 13th and 14th, the following large falls being registered :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
TANJORE . . .	Nayavaram. . .	13th February.	2·50
TRICHINOPOLY . .	Jayankondasolapuram.	14th „ .	4·26
TANJORE . . .	Magilamkottai . .	„ „ .	4·07
MADURA . . .	Pamban . . .	„ „ .	3·50
TANJORE. . .	Pattukkottai . .	„ „ .	2·72
	Tirukattupalli . .	„ „ .	1·85

The rainfall of the month was below the normal in all divisions with the exception of the East Coast (South), where it was in slight excess. The deficiency was greatest in actual amount in South Madras where it averaged half an inch. The following gives comparative data for seven divisions of the Presidency :—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, February 1902.	Average normal, February.	Variation of actual from normal, February 1902.	Percentage variation from normal	Average actual, February 1902.	Average normal, February.
	Inch.	Inch.	Inch.			
Malabar . . .	0·09	0·21	—0·12	—57	0·3	0·3
Madras, South-Central .	0·11	0·34	—0·23	—68	0·4	0·6
East Coast, North	0	0·34	—0·34	—100	0	0·6
Madras, Central . .	0	0·05	—0·05	—100	0	0
East Coast, Central	0	0·19	—0·19	—100	0	0·1
„ „ South . .	0·75	0·45	+0·30	+67	1·0	0·6
Madras, South . .	0·30	0·84	—0·54	—64	0·4	1·2

Actually or practically no rain fell in the Bombay Presidency, Berar and Mysore.

HEM RAJ.

TABLE I.—Abstract of Observations taken at 8 A.M. at 227 Stations in India, Burma, etc., in February 1902.

Table

Abstract of Observations taken at 8 A.M. at 227

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure 8 A.M. in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to standard gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.				+·096								87·9	−1·7	68·8	+0·2	78·4	−0·8	19·1					29·6
1	Tenasserim and Bay Islands.	Car Nicobar**	25	29·942		29·894	30·011	17th	29·867	2nd	·144	79·2	86·1		77·0		81·6		91·1	87·5	19th	72·4	7th	15·1
		Port Blair .	61	30·013	+·086	30·005	30·074	23rd	29·920	26th	·154	78·4	87·3	−0·8	75·9*	+1·1	81·6*	+0·2	11·4	90·4	25th	71·2	3rd	19·2
		Mergui .	96	29·992	+·105	30·022	30·087	12th	29·881	2nd	·206	74·1	88·7	−0·9	69·2	+0·1	79·0	−0·4	19·5	91·1	4 days.	60·3	14th	30·8
		Tavoy .	26	30·061	P	30·018	30·162	12th	29·965	2nd	·197	71·3	90·0	−1·1	65·9	−0·9	78·0	−1·0	24·1	94·2	18th	55·0	16th	39·2
		Moulmein .	94	29·997	+·104	30·030	30·111	12th	29·895	2nd	·216	71·7	90·2	−1·3	67·3	−0·4	78·8	−0·9	22·9	93·5	19th	61·4	16th	32·1
2	Lower Burma .	Rangoon .	41									70·2	88·8	−4·0	67·9	+2·0	78·0	−1·0	20·9	93·1	25th	61·8	3rd	31·3
		Bassein .	27	30·067	+·105	30·030	30·163	12th	29·958	26th	·205	71·0	89·3	−0·7	67·9	+3·0	78·6	P	21·4	92·2	4 days.	62·3	1st	29·9
		Diamond Island.	41	30·040	+·080	30·016	30·132	12th	29·931	26th	·201	77·6	87·0	P	74·8	+2·5	80·9	P	12·2	91·4	18th	72·7	1st	18·7
5	Arakan . .	Akyab .	20	30·080	+·086	30·042	30·175	17th	29·955	26th	·220	65·1	84·7	−0·1	60·7	−0·8	72·7	−0·5	24·0	93·4	24th	54·1	10th	39·3
3	Central Burma .	Toungoo .	183	29·905	+·105	30·036	30·020	12th	29·805	2nd	·215	69·0	86·9	−4·0	61·6	+0·5	74·3	−1·8	25·3	91·6	23rd	51·6	1st	40·0
	II.—Burma Inland.				+·116								87·8	−0·4	57·4	−0·5	72·6	−0·4	30·4					44·3
3	Central Burma .	Thayetmyo .	130	29·973	+·120	30·049	30·082	12th	29·868	2nd	·214	67·6	91·4	−1·2	58·6	+1·7	75·0	P	32·8	96·7	23rd	48·6	5th & 9th.	48·1
4	Upper Burma .	Minbu .	165	29·934	+·117	30·048	30·045	12th	29·801	2nd	·244	67·5	90·4	−1·2	60·6	−0·6	75·5	−0·9	29·8	95·1	24th	51·5	5th	43·6
		Yamethin .	657	29·420	+·118	30·054	29·541	12th	29·281	2nd	·260	66·2	90·3	−2·2	60·1	−0·5	75·2	−1·4	30·2	95·5	28th	51·7	9th	43·8
		Mandalay .	250	29·847	P	30·056	29·960	12th	29·708	1st	·252	68·0	90·6	+0·7	60·6	+0·5	75·6	+0·6	30·0	95·5	23rd	53·3	7th & 12th.	42·2
		Kindat .	377	29·737	+·112	30·092	29·870	12th	29·558	2nd	·312	57·9	83·2	+1·3	52·9	−1·2	68·1	+0·1	30·3	88·8	28th	45·3	9th	43·5
		Bhamo .	381	29·705	+·111	30·063	29·832	12th	29·525	2nd	·307	58·0	80·8	P	51·6	−1·5	66·2	P	29·2	87·5	27th	43·2	10th	44·3
4(a)	Burma Hill Stations.	Maymyo .		26·575			26·671	12th & 13th.	26·450	2nd	·221	55·6	76·0		43·4		59·7		32·6	80·0	21st, 22nd & 23rd.	36·8	8th, 9th & 10th.	43·2
		Taunggyi .										57·1	68·4	−7·6	46·2	−0·3	57·3	P	22·2	73·2	23rd	40·1	9th	33·1
		Lashio .										56·1	78·6	−0·4	48·6	−0·1	63·6	−0·3	30·0	83·6	28th	42·5	10th	41·1
	III.—Assam				+·102								77·5	+2·2	54·2	−0·8	65·9	+0·7	23·3					38·6
7	Surma . .	Silchar .	104	30·032	+·099	30·093	30·151	17th	29·872	2nd	·279	61·5	84·2	+3·5	54·9	−0·7	69·6	+1·4	29·3	90·0	25th	47·5	9th	42·5
9	Brahmaputra .	Sibsagar .	333	29·813	+·104	30·123	29·939	17th	29·628	1st & 2nd	·311	56·4	74·1	+1·0	52·5	−0·8	63·3	+0·1	21·6	81·3	26th	43·9	9th	37·4
		Dhubri .	115	29·996	+·102	30·071	30·109	17th	29·820	1st	·289	59·3	80·0	+2·0	55·1	−0·9	67·6	+0·6	24·9	86·2	3 days.	46·8	4th	39·4
		Tezpur .	252	29·859		30·088	29·975	17th	29·698	2nd	·277	58·5	76·3		54·5		65·4		21·8	83·0	27th	46·5	2nd	36·5
		Dibrugarh .	394	29·779		30·111	29·886	23rd	29·653	1st	·233	57·7	73·0		54·0		63·5		19·0	82·1	26th	44·9	9th	37·2
	IV.—Bengal and Orissa.				+·093								83·6	+1·9	56·9	−0·9	70·3	+0·5	26·7					42·3
6	East Bengal .	Chittagong .	87	30·019	+·089	30·059	30·127	17th	29·882	2nd	·245	63·3	83·9	+1·6	57·2	−1·8	70·5	−0·1	26·7	89·5	28th	48·6	10th	40·9
		Noakhali .	43	30·065		30·056	30·186	17th	29·941	2nd	·245	66·0	82·3		56·9		69·7		25·4	88·5	24th	48·1	10th	40·4
		Comilla .	36	30·071		30·056	30·187	17th	29·941	2nd & 26th.	·246	62·3	84·7		56·1		70·4		28·6	90·4	21st & 27th.	48·1	10th	42·3
		Sirajganj .	49	30·054		30·055	30·150	11th	29·895	26th	·255	59·5	82·8		54·0		68·4		28·8	90·1	28th	46·3	4th	43·8
		Narayanganj	26	30·089	P	30·064	30·203	17th	29·950	26th	·253	64·0	83·2	+1·0	58·6	0	70·9	+0·5	21·6	89·1	21st & 27th.	50·2	10th	38·9
		Barisal .	13	30·082†	+·082	30·041†	30·191	17th	29·947	26th	·244	65·6	83·5	+1·8	58·4†	−1·3	71·0†	+0·3	25·1	89·8	21st	50·2	5th & 10th.	39·6
		Mymensingh	59	30·043	+·087	30·056	30·145	17th	29·904	1st	·242	60·6	80·7	+2·3	55·8	+0·2	68·3	+1·3	24·9	86·7	27th	47·0	9th	39·7
10	Deltaic Bengal	Faridpur .	46	30·064		30·060	30·172	17th	29·923	26th	·249	61·6	83·0*		54·3		68·5*		28·7	90·1	28th	46·8	4th	43·3
		Jessore .	33	30·085	+·100	30·066	30·190	17th	29·938	26th	·252	64·3	83·9	+0·8	55·2	−2·1	69·6	P	28·7	91·5	28th	45·1	4th	46·4
		Calcutta .	21	30·102	+·099	30·069	30·195	12th	29·957	26th	·238	63·91	84·3§	+2·3	58·5‡	−1·9	71·4§	+0·2	25·8	91·7	27th	48·6	4th	43·1
		Saugor Island	25	30·088	+·097	30·058	30·180	12th	29·944	26th	·236	69·6	82·3	+1·1	65·5	0	73·9	+0·6	16·8	89·4	22nd	51·5	11th	37·9
		Krishnagar .	47	30·080		30·077	30·168	17th	29·928	26th	·240	64·6	84·8		54·1		69·5		30·7	92·0	27th	43·8	4th	48·2
		Midnapore	149	29·962		30·065	30·051	12th	29·820	26th	·231	66·8	87·3		60·9		74·1		26·4	94·3	27th	50·6	4th	43·7

* Mean of 26 days. † Mean of 27 days. ** Observations of 26 days.

I.

Stations in India, Burma, etc., in February, 1902.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected.)	Mean velocity corrected (where possible.)	Normal.	Percentage variation.	Hygrometry 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec. 1901 to 28th February 1902	Normal rainfall for period, 1st December to 28th February	Variation from normal of period, 1st December to 28th February.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				1·09	0·44	+0·68					**I.—Burma Coast and Bay Islands.**		
2	2	7	8	5					N 80° E	5·9¶	5·9¶			78	·780	7·8	3			0·83			11·19			0·40	Car Nicobar††	Tenasserim and Bay Islands.	1
1	3	6	4	4	1		2	7	N 27° E	4·6		5·1		85	·828	4·0	5			6·29	0·40	+ 5·89	7·61	8·04	− 0·43	5·16	Port Blair .		
28									Calm	2·4	2·1	2·0	+ 5	81	·679	3·3	2	2·80	−0·80	2·89	1·73	+ 1·16	2·89	3·02	− 0·13	2·64	Mergui.		
28									Calm	0·9				83	·646	1·4	0	0·80	−0·80	0·07	0·65	− 0·58	0·15	0·92	− 0·77	0·07	Tavoy.		
	7	9	1	2	1	5		3	N 18° E	2·2	2·4	2·4	0	78	·614	2·7	1	0·50	+0·50	0·20	0·25	− 0·05	0·23	0·66	− 0·43	0·10	Moulmein		
										6·0	5·0	3·9	+28	85	·632	3·0	0	0·40	−0·40	0	0·31	− 0·31	0	0·52	− 0·52	0	Rangoon .	Lower Burma.	2
12	1							15	N 43° W	4·2		3·8	+11	85	·650	2·0	0	0·30	−0·30	0	0·29	− 0·29	0·21	0·56	− 0·35	0	Bassein.		
5	9	5	2	1			1	5	N 7° E	5·6	5·6	7·2	−22	76	·718	2·5	1	0·40	+0·60	0·27	0·07	+ 0·20	0 28	0·98	− 0·70	0·27	Diamond Island.		
	27	1							N 1° E	3·0	2·9	3·4	−15	84	·530	1·1	0	0·30	−0·30	0	0·12	− 0·12	0·43	0·88	− 0·45	0	Akyab. .	Arakan.	5
5	4	4		7			2	6	N 13° E	2·1	2·1	1·9	+11	86	·621	2·3	1	0·30	+0·70	0·38	0·15	+ 0·23	0·85	0·40	+ 0·45	0·38	Toungoo .	Central Burma.	3
																				0·21	0·20	+0·01					**II.—Burma Inland.**		
	1	6	7	3	4	2	4	1	S 77° E	2·9		4·2	−31	66	·441	9·0	0	0·10	−0·10	0	0·04	− 0·04	0·03	0·21	− 0·18	0	Thayetmyo .	Central Burma.	3
11	2			3	2			10	N 45° W	3·8	4·5			62	·423	1·0	0	0·10	−0·10	0·08	0·03	+ 0·05	0·51	0·66	− 0·15	0·08	Minbu .	Upper Burma.	4
16	4			5	2			1	S 75° E	1·4	1·5			78	·508	1·8	2	0·30	+1·70	1·08	0·38	+ 0·70	1·48	0·35	+ 0·53	0·93	Yamethin.		
2	7				18				S	1·6	1·6			66	·461	0	0	0·30	−0·30	0	0·05	− 0 05	0	0·39	− 0·39	0	Mandalay.		
26		1		1					E	1·0	1·0			96	·469	0·2	0	0·70	−0·70	0	0·30	− 0·30	0	1·18	− 1 18	0	Kindat.		
14	2	6	1	1		1	2	1	N 25° E	2·0	2·3			92	·444	2·5	0	1·10	−1·10	0·10	0·39	− 0·29	0·77	1·53	− 0·76	0·04	Bhamo.		
22		4				1	1		N 27° E	4·8				77	·313	1·1	1	0·30	+0·70	0·12	0·30	− 0·18	0·73	0·81	− 0·08	0·12	Maymyo .	Burma Hill Stations.	4(a)
		1		13	9	5			S 16° E					67	·313	1·9	1			0·15	0·28	− 0·13	0·91	0·93	− 0·02	0·15	Taunggyi.		
	1	3	2	10	5	3	2	2	S 31° E	11·6				79	·358	3·8	1			0·21	0·29	− 0·08	0·70	1·31	− 0·61	0·10	Lashio.		
																				0·76	1·59	−1·02					**III.—Assam.**		
23		2	3						N 72° E	1·4	2·4	2·8	−14	84	·466	1·4	1	3·70	−2·70	0·39	2·31	− 1·92	0·42	3·49	− 3·07	0·25	Silchar .	Surma.	7
8	5	11			1	3			N 31° E	2·4	2·2	2·2	0	98	·452	5·8	4	4·90	−0·90	1·32	1·98	− 0·66	1·92	3·86	− 1·94	0·50	Sibsagar .	Brahmaputra.	9
2		6	16	1		3			N 86° E	3·1	3·7	4·0	− 8	85	·436	1·6	0	1·20	−1·20	0	0·48	− 0·48	0·05	0·98	− 0·93	0	Dhubri.		
		14	12	2					N 70° E	3·5	3·7			87	·429	2·3	2	2·60	- 0·60	0·53			0·67			0·25	Tezpur.		
	6	9	1	4	2	1		5	N 31° E	2·0	1·9			90	·426	1·3	4	6·70	−2·70	1·56			2·93			0·73	Dibrugarh.		
																				0·02	0·90	− 0·88					**IV.—Bengal and Orissa.**		
	9	17	1	1					N 35° E	3·7	3·6	4·4	−18	83	·486	1·9†	0	1·39	−1·39	0	0·98	− 0·98	0	2·13	− 2·13	0	Chittagong .	East Bengal.	6
	5	4	4	3	5	3	3	1	S 72° E	0·9	0·8			83	·537	1·4	0	1·81	−1·81	0	1·00	− 1·00	0	1·82	− 1·82	0	Noakhali.		
15				2	11				S 5° E	1·1				86	·487	0·1	0	2·18	−2·18	0·02	0·97	− 0·95	0·02	1·73	− 1·71	0·02	Comilla.		
27	1								N	0·7	0·7			86	·443	0	0	1·57	−1·57	0	0·91	− 0·91	0	1·49	− 1·49	0	Sirajganj.		
13	1	2	2	2	1	3	2	2	S 45° W	2·4		2·6	− 8	82	·499	?	0	2·12	−2·12	0	1·28	− 1·28	0	1·82	− 1·82	0	Narayanganj.		
12	2	4		2	1	1	3	3	N 27° W	1·9				88	·556	0·2‖	0	1·77	−1·77	0	1·04	− 1·04	0	2·31	− 2·31	0	Barisal.		
15		2	8	3					S 85° E	1·5	1·3			94	·453	?	0	1·48	−1·48	0	1·03	− 1·03	0	1·58	− 1·58	0	Mymensingh.		
	7	1	3	1	4	2	4	6	N 40° W	1·9	1·6			82	·457	0·2	0	2·00	−2·00	0	1·32	− 1·32	0	1·89	− 1·89	0	Faridpur .	Deltaic Bengal.	10
24		1			1	1	1		S 45° W	0·8	0·8	2·0	−60	76	·472	1·4*	0	1·77	−1·77	0	1·16	− 1·16	0	1·80	− 1·80	0	Jessore.		
11	5	2	1		4	3		2	N 27° W	3·8		3·8	0	78‡	·483‡	1·6¶	0	1·61	−1·61	0·02	1·00	− 0·98	0·02	1·54	− 1·52	0·02	Calcutta.		
1	6	6	1		3	3	4	4	N 27° W	8·2		7·9	+ 4	83	·618	2·4*	0	1·74	−1·74	0	1·12	- 1·12	0	1·66	− 1·66	0	Saugor Island		
4	3	1		1	4	5	5	5	S 85° W	2·0				70	·437	1·4	0	1·58	−1·58	0	1·10	− 1·10	0	1·63	− 1·63	0	Krishnagar.		
6	7	2		1	3	2	3	4	N 40° W	2·6	2·3			58	·401	1·0	0	1·77	−1·77	0	1·09	− 1·09	0	1·84	- 1·84	0	Midnapore.		

‡ Mean of 19 days. § Mean of 18 days. ‖ Mean of 22 days. ¶ Mean of 25 days. †† Wind variable 2.

Table

Abstract of Observations taken at 8 A.M. at 227 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure 8 A.M. in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal.	Bankura	298	29·787		30·051	29·880	12th	29·636	26th	·244	65·6	85·9		59·0		72·5		26·9	93·1	28th	49·6	4th	43·5
		Raniganj	334	29·782		30·084	29·870	12th	29·626	26th	·244	62·5	85·8		57·8		71·8		28·0	93·3	27th	49·2	4th,	44·1
		Burdwan	99	30·019	+·096	30·071	30·109	17th	29·859	26th	·250	64·2	86·2	+2·4	58·3	−0·3	72·3	+1·1	27·9	92·8	21st	48·6	4th	44·2
		Naya Dumka	489	29·617		30·094	29·710	12th	29·465	26th	·245	62·9	83·6		54·4		69·0		29·2	91·5	27th & 28th.	46·0	10th	45·5
		Berhampore	67	30·052	+·098	30·070	30·143	12th	29·890	26th	·253	61·7	85·1	+3·1	55·4	−1·1	70·2	+1·0	29·7	92·4	27th	48·3	4th	44·1
		Rampur Boalia	70	30·045		30·067	30·138	12th	29·895	26th	·243	61·9	82·5		54·5		68·5		28·0	90·1	28th	46·2	4th	43·9
		Malda	72	30·016?		30·044?	30·118	11th	29·863	26th	·255	60·9	83·3		52·2		67·8		31·1	92·1	28th	43·0	4th	49·1
		Bogra	61	30·032?	?	30·049?	30·124	11th	29·894	26th	·230	59·1	82·9	+2·7	53·5	−1·0	68·2	+0·9	29·4	90·2	27th & 28th.	46·0	8th	44·2
12	North Bengal	Dinajpur	123	29·966	+·081	30·053	30·072	17th	29·803	1st	·269	55·6	82·5	+3·1	49·9	−3·2	66·3	?	32·6	90·1	27th & 28th.	40·5	8th	49·6
		Rangpur	123	29·993		30·078	30·100	17th	29·837	1st & 26th.	·263	58·2	81·0		51·4*		66·3*		29·6	87·5	27th	42·3	1st	45·2
		Jalpaiguri	284	29·822	+·097	30·081	29·934	17th	29·641	1st	·293	57·9	78·8	+2·3	53·9	+1·1	66·4	+1·7	24·9	84·8	27th	46·1	8th	38·7
		Cooch Behar	156	29·962		30·084	30·077	12th	29·789	1st	·288	59·1	79·0		54·9		67·0		24·1	84·6	27th	47·5	2nd	37·1
17	North Bihar	Purnea	125	29·990	?	30·079	30·097	9th	29·832	1st	·265	54·5	83·1	+4·0	49·4	−2·0	66·3	+1·0	33·7	92·2	27th	39·8	7th	52·4
14	Orissa	Balasore	48	30·078	+·097	30·072	30·174	12th	29·926	27th	·248	66·8	86·4	+1·0	60·3	−1·6	73·4	−0·3	26·1	93·4	19th	51·5	4th & 11th.	41·9
		False Point	21	30·097	+·096	30·060	30·197	12th	29·960	26th	·237	69·6	83·2	+0·4	63·1	−1·7	73·2	−0·7	20·1	86·4	15th	54·0	5th & 12th.	32·4
		Cuttack	80	30·028	+·091	30·054	30·131	17th	29·885	27th	·246	68·2	90·1	0	64·9	−0·8	77·5	−0·4	25·2	95·9	27th	56·1	4th	39·8
		Puri	24	30·088*		30·052*	30·193	17th	29·950	26th	·243	72·0	83·1		68·4		75·8		14·7	86·7	20th	60·6	4th	26·1
	V.—Gangetic Plain and Chota Nagpur.				+·091								82·4	+3·1	52·5	−0·9	67·5	+1·1	29·9					48·0
15	Chota Nagpur	Hazaribagh	2,007	28·065	?	30·097	28·141	12th	27·931	2nd	·210	62·6	79·7	+1·7	55·6	+1·1	67·7	+1·4	24·1	88·2	27th & 28th	45·2	9th	43·0
		Ranchi	2,128	27·932	+·095	30·088	28·016	12th	27·794	2nd	·222	61·5	80·0	+1·8	55·9	+1·1	68·0	+1·5	24·1	88·2	27th	47·5	10th	40·7
		Daltonganj	730?	29·393?		30·120?	29·488	12th	29·234	26th	·254	55·8	82·8		49·5		66·1		33·3	92·1	28th	38·5	9th & 10th.	53·6
		Purulia		29·269		30·068	29·366	12th	29·119	26th	·247	64·1	85·5		58·2		71·8		27·3	93·5	27th	49·8	4th	43·7
		Chaibassa	760	29·333	+·102	30·080	29·426	12th	29·182	26th	·244	62·9	86·4	+1·2	58·1	−0·2	72·3	+0·5	28·3	97·2	28th	48·4	11th	48·3
16	South Bihar	Gaya	375	29·733	+·091	30·084	29·834	12th	29·577	26th	·257	61·2	83·4	+2·1	55·0	−1·2	69·2	+0·5	28·4	92·2	27th & 28th.	45·9	10th	46·3
		Dehri	351	29·753		30·080	29·861	12th	29·602	26th	·259	62·2	82·7		57·9		70·3		24·8	91·8	20th & 28th.	49·6	9th	42·2
		Patna	183	29·927	+·091	30·073	30·039	9th & 12th	29·774	26th	·265	61·8	82·3	+4·1	54·6	?	68·5	?	27·7	92·0	27th	46·6	8th	45·4
		Arrah	190	29·914		30·069	30·028	12th	29·761	26th	·267	58·6	82·5		53·9		68·3		28·6	91·5	20th & 27th.	43·1	9th	48·4
		Buxar	239	29·873		30·081	29·982	12th	29·715	26th	·267	61·4	82·9		53·9		68·4		29·0	92·5	27th	44·1	8th	48·4
17	North Bihar	Bhagalpur	160	29·959		30·079	30·061	9th	29·786	26th	·275	63·2	83·0		53·0		68·0		30·0	92·2	28th	43·6	4th	48·6
		Darbhanga	166	29·933	+·090	30·064	30·046	9th	29·766	26th	·280	58·1	81·7	+4·9	51·8	−2·6	66·8	+1·2	29·9	89·3	27th & 28th.	43·8	3rd	45·5
		Muzaffarpur	178	29·937		30·081	30·047	12th	29·776	26th	·271	57·4	82·1		49·7		66·0		32·4	90·9	28th	41·8	9th	49·1
		Motihari	224	29·894		30·089	30·018	12th	29·728	26th	·290	59·7	81·7		46·9		64·3		34·8	89·0	27th & 28th.	39·0	4 days.	50·0
		Chapra	181	29·925		30·072	30·036	12th	29·771	26th	·265	57·7	82·3		51·5		66·9		30·8	91·3	27th	42·7	9th	48·6
13	United Provinces, East.	Benares	267	29·836	+·088	30·076	29·952	12th	29·681	26th	·271	58·9	82·3	+1·9	50·4	−1·6	66·4	+0·2	31·9	91·8	27th & 28th.	40·0	9th	51·8
		Allahabad	309	29·790	+·083	30·073	29·904	12th	29·631	26th	·273	59·8	82·9	+2·7	50·8	−1·0	66·9	+0·9	32·1	92·1	27th	40·4	9th	51·7
23	United Provinces (East Submontane.)	Gorakhpur	256	29·827?	+·088?	30·058?	29·951	12th	29·667	26th	·284	57·2	82·1	+4·1	51·7	−0·9	66·9	+1·6	30·4	90·5	27th & 28th.	43·1	9th	47·4
19	South Oudh	Lucknow	368	29·721	+·085	30·074	29·840	12th	29·565	26th	·275	56·0	82·2	+3·4	49·0	−1·9	65·6	+0·8	33·2	91·3	27th & 28th.	40·1	9th & 10th.	51·2
20	North Oudh	Bahraich	403	29·661?	+·081?	30·052?	29·804	12th	29·509	27th	·295	57·4	81·3	+4·6	50·2	−0·5	65·8	+2·1	31·1	89·6	27th	40·1	3rd	49·5
21	United Provinces (Central.)	Cawnpore	416	29·680	?	30·080	29·786	12th	29·515	26th	·271	56·2	82·4	+3·6	48·9	−2·4	65·7	+0·6	33·5	90·3	27th	39·0	10th	51·3
		Mainpuri	516	29·575	?	30·086	29·676	12th	29·433	26th	·243	56·7	81·5	+4·7	49·4	−1·0	65·5	+1·9	32·1	90·8	28th	41·1	10th	49·7

* Mean of 27 days.

† Mean of 26 days.

I—*continued.*

in India, Burma, etc., in February, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind Resultant.	Wind Velocity: Mean velocity in miles per hour, by anemometer (uncorrected.)	Mean velocity corrected (where possible.)	Normal.	Percentage variation.	Hygrometry, 8 A.M.: Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall: Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st December 1901 to 28th Feb. 1902.	Normal rainfall for period, 1st Dec. to 28th February.	Variation from normal of period, 1st December to 28th February.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
16		1	1			2	7	1	W	1·7	2·0			54	·363	1·0	1	1·88	− 0·88	0·37	1·03	− 0·66	0·37	1·50	− 1·13	0·37	Baukura	Central Bengal	11
20	1					1	1	5	N 51° W	1·2				53	·313	1·4	0	1·52	− 1·52	0	1·05	− 1·05	0	1·56	− 1·56	0	Raniganj.		
9	10	2	1				1	5	N 8° W	1·8	1·9	2·3	−17	68	·422	1·0‖	0	1·58	−1·58	0·07	0·92	− 0·85	0·07	1·32	− 1·25	0·04	Burdwan.		
22							3	3	N 58° W	2·0	2·2			51	·299	1·4	0	1·62	− 1·62	0	0·70	− 0·70	0	1·45	− 1·45	0	Naya Dumka.		
10	1			1		5	6	5	N 88° W	1·7	1·8	2·4	−25	73	·409	1·7	0	1·65	− 1·65	0	0·97	− 0·97	0	1·49	− 1·49	0	Berhampore.		
28									Calm	0·2	0·2			71	·403	0·3	0	1·35	− 1·35	0	0·84	− 0·84	0	1·25	− 1·25	0	Rampur Boalia.		
5					2	5	8	8	N 89° W	1·9	1·8			68	·375	0·1	0	1·23	− 1·23	0	0·75	− 0·75	0	1·67	− 1·67	0	Malda.		
18	10								N					78	·399	0	0	1·52	− 1·52	0	0·85	− 0·85	0·07	1·44	− 1·37	0	Bogra.		
	3	7	3		2	5	5	3	N 31° W					82	·370	1·4	0	1·39	− 1·39	0	0·37	− 0·37	0·08	0·92	− 0·84	0	Dinajpur	North Bengal.	12
11		7	8			1	1		N 70° E	1·5	1·6			85	·418		0	1·13	− 1·13	0	0·43	− 0·43	0	1·01	− 1·01	0	Rangpur.		
	9	6	2	1	1	1	1	7	N 1° E	0·9	1·2			87	·424	0·4†	0	1·03	− 1·03	0	0·45	− 0·45	0·59	0·99	− 0·40	0	Jalpaiguri.		
13		1	8	5			1		S 75° E	1·2	1·2			85	·432	0·7	0	1·21	− 1·21	0	0·42	− 0·42	0	0·93	− 0·93	0	Cooch Behar		
16		4				5		3	N 72° W	3·4	3·0	2·5	+20	75	·329	0·5	0	1·13	− 1·13	0	0·56	− 0·56	0	1·13	− 1·13	0	Purnea	North Bihar.	17
11	4					7	2	4	N 79° W	3·1				63	·435	1·1	0	2·16	− 2·16	0	1·20	− 1·20	0	1·65	− 1·65	0	Balasore	Orissa.	14
6	8				1	1	7	5	N 48° W	6·8	6·5	7·5	−13	88	·645	3·3*	0	1·29	− 1·29	0	0·95	− 0·95	0·03	2·10	− 2·07	0	False Point.		
21			3		1	1	2		S 13° E	1·5		2·2	−32	82	·574	2·5†	0	1·16	− 1·16	0	0·46	− 0·46	0·70	0·89	− 0·19	0	Cuttack.		
18	4	2				4			N 18° W	8·7	8·2			82	·653	1·5	0	1·08	− 1·08	0	0·99	− 0·99	0·16	1·90	− 1·74	0	Puri.		
																				0·14	0·67	−0·52					**V.—Gangetic Plain and Chota Nagpur.**		
9	2					5	7	5	N 82° W	6·4	5·7	6·5	−12	44	·260	2·5	1	1·84	− 0·84	0·48	0·76	− 0·28	0·78	1·44	−0·66	0·48	Hazaribagh.	Chota Nagpur.	15
16	1					2	1	8	N 58° W	3·7	4·4			47	·266	2·1	2	2·10	− 0·10	0·93	1·36	− 0·43	0·93	1·74	− 0·81	0·73	Ranchi.		
23			4	1					S 79° E	1·5	1·8			68	·329	1·1	1	1·30	− 0·30	0·36	0·53	− 0·17	0·91	1·58	− 0·67	0·33	Daltonganj.		
16	1						4	7	N 56° W	1·0	1·3			46	·289	1·3	1	1·97	− 0·97	0·43	1·02	− 0·59	0·43	1·64	− 1·21	0·38	Purulia.		
17	1					4	6		S 77° W	1·1	1·0			61	·368	1·2	1	1·61	− 0·61	0·18	1·26	− 1·08	0·18	1·50	− 1·32	0·18	Chaibassa.		
8		1			7	9	3		S 35° W	4·8	4·3	2·6	+ 65	64	·357	1·9	0	1·39	− 1·39	0·05	0·63	− 0·58	0·64	1·39	− 0·75	0·03	Gaya	South Bihar.	16
1					12	14	1		S 27° W	4·5	4·0			57	·330	2·0	0	1·29	− 1·29	0·12	0·52	− 0·40	1·34	1·43	− 0·09	0·08	Dehri.		
5	1		1	1	1	10	7	2	S 67° W	2·9	3·4	2·9	+ 17	58	·331	1·6	1	1·16	− 0·16	0·10	0·60	− 0·50	0·10	1·26	− 1·16	0·10	Patna.		
24		1					2	1	N 63° W	2·1	2·2			66	·345	1·2	0	1·10	− 1·10	0·02	0·61	− 0·59	0·02	1·62	− 1·60	0·02	Arrah.		
1			1	1	3	4	17	1	S 72° W	4·1	3·7			51	·291	1·4	0	1·39	− 1·39	0·09	0·52	− 0·43	0·09	1·50	− 1·41	0·09	Buxar.		
8	2	2		1	3	6	4	2	S 69° W	2·8	2·6			54	·312	1·4	0	1·52	− 1·52	0	0·68	− 0·68	0	1·30	− 1·30	0	Bhagalpur	North Bihar.	17
19			1	1		3	3	1	S 63° W	2·0		3·3	− 39	69	·345	0·8	0	1·23	− 1·23	0	0·51	− 0·51	0	1·20	− 1·20	0	Darbhanga.		
11		4	1			5	6	1	W	3·3	3·3			73	·356	0·4	0	1·27	− 1·27	0	0·47	− 0·47	0	1·33	− 1·33	0	Muzaffarpur		
	1	4	4	3	3	10	1	2	S 8° W	4·0	3·9			81	·433	0	0	1·00	− 1·00	0	0·37	− 0·37	0	1·10	− 1·10	0	Motihari.		
14				2		10	2		S 45° W	2·2	2·0			67	·327	1·1	0	1·13	− 1·13	0·07	0·49	− 0·42	0·07	1·32	− 1·25	0·05	Chapra.		
16		1	1	1		7	2		S 43° W	1·8	2·1	4·1	−49	69	·358	1·5	0	1·20	− 1·20	0·07	0·46	− 0·39	0·54	1·34	− 0·80	0·04	Benares	United Provinces East.	18
11			2	3	2	2	6	2	S 48° W	3·8	4·3	4·2	+ 2	62	·333	1·9	0	1·00	− 1·00	0·11	0·47	− 0·36	0·64	1·47	− 0·83	0·07	Allahabad.		
12		2	2		2	3	7		S 65° W	1·4		2·3	−39	73	·359	1·3	0	1·30	− 1·30	0	0·49	− 0·49	0·06	1·39	− 1·33	0	Gorakhpur	United Provinces (East Submontane)	23
11	1				2	1	12	1	S 86° W	1·6	1·7	3·3	−48	62	·283	1·6	0	1·20	− 1·20	0	0·44	− 0·44	0·06	1·78	− 1·72	0	Lucknow	South Oudh.	19
17	1	2				3	3	2	N 72° W	2·1	2·0			69	·331	0·7	0	1·60	− 1·60	0·03	1·01	− 0·98	0·24	2·27	− 2·03	0·03	Bahraich	North Oudh.	20
13	1	1	1	1	1	5	4	1	S 63° W	2·5				57	·271	1·0	0	1·00	− 1·00	0·08	0·48	− 0·40	0·15	1·33	− 1·18	0·08	Cawnpore	United Provinces (Central).	21
15	1		3		1	1	5	2	N 80° W	1·6	1·6			52	·249	2·6	0	0·70	− 0·70	0	0·96	− 0·96	0·80	2·03	− 1·23	0	Mainpuri.		

‖ Mean of 24 days.

Table

Abstract of Observations taken at 8 A.M. at 227 Stations

mber of District.	Meteorological Provinces or Districts.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°.)	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas				+·093								78·8	+6·7	46·9	+0·3	62·9	+3·6	31·9					49·9
24	United Provinces. (West Submontane).	Bareilly .	569	29·508	+·095	30·081	29·625	12th	29·361	27th	·264	54·3	79·8	+4·8	49·5	−0·2	64·7	+2·3	30·3	88·4	28th	39·7	9th	48·7
		Dehra Dun .	2,233	27·806	+·094	30·108	27·918	12th	27·674	2nd	·244	52·6	75·4	+6·2	48·3	+1·3	61·9	+3·8	27·1	83·5	20th	38·0	2nd	45·5
		Roorkee .	887	29·178	+·097	30·100	29·291	12th	29·043	27th	·248	50·7	79·5	+6·4	44·6	?	62·1	?	34·9	88·8	20th	34·8	6th	54·0
22	United Provinces, West.	Meerut .	738	29·329	+·094	30·089	29·446	12th	29·187	26th	·259	51·7	80·4	+5·9	47·3	−1·1	63·9	+2·4	33·1	89·6	20th	39·2	10th & 11th.	50·4
26	South-East Punjab.	Delhi .	718	29·362	+·087	30·093	29·477	12th	29·222	26th	·255	55·3	79·0	+4·2	52·5	+0·7	65·8	+2·5	26·5	87·2	19th, 20th & 28th.	44·1	1st & 30th.	43·1
28	Central Punjab.	Lahore .	702	29·389	+·092	30·115	29·487	12th	29·229	26th	·258	49·8	80·0	+7·3	45·3	+1·2	62·7	+4·3	34·7	87·9	27th	36·0	8th & 9th.	51·9
27	South Punjab .	Sirsa .	662	29·419	+·082	30·100	29·502	10th	29·232	26th	·270	53·0	80·8	+5·6	47·1	+0·3	64·0	+3·0	33·7	89·8	28th	36·5	9th	53·3
		Patiala .	818	29·252		30·096	29·358	12th	29·125	27th	·233	53·3	78·2		46·5		62·4		31·7	86·9	28th	36·8	9th	50·1
9	Punjab (Submontane).	Ludhiana .	812	29·264	+·098	30·106	29·380	12th	29·126	26th	·254	51·7	77·3	+6·1	48·2	+0·7	62·8	+3·4	29·1	86·6	28th	39·6	1st, 8th & 9th.	47·0
		Sialkot .	830	29·248	+·100	30·113	29·360	12th	29·107	26th	·253	51·8	78·9	+9·3	47·1	+1·0	63·0	+5·2	31·8	86·6	27th	37·0	2nd	49·6
		Umballa .	892	29·171	+·111	30·096	29·285	12th	29·036	27th	·249	52·2	80·5	?	45·0	−2·8	62·8	?	35·5	90·0	20th	34·0	9th	56·0
31	North Punjab .	Rawalpindi .	1,674	28·385	+·085	30·154	28·484	12th	28·268	26th	·216	47·9	75·5	+10·7	41·2	−0·2	58·4	+5·3	34·3	82·4	26th	33·0	3rd	49·4
	VII.—North-West Frontier, Indus Valley and North-West Rajputana.				+·084								82·2	+7·0	48·4	−1·0	65·4	+3·0	33·8					52·6
31	North Punjab .	Peshawar .	1,110	29·008	+·079	30·185	29·107	12th	28·853	25th	·254	51·2	74·6	+8·5	44·3	+1·7	59·5	+5·1	30·3	81·6	23rd	34·4	2nd	47·2
32	West Punjab .	Khushab .	612	29·502	+·105	30·136	29·610	12th	29·333	26th	·277	50·6	79·0	+10·3	44·0	−2·1	61·5	+4·1	35·0	86·3	28th	31·4	1st	54·9
		Montgomery .	558	29·539	+·093	30·108	29·614	12th	29·337	26th	·277	52·9	79·9	+7·1	45·0	−1·4	62·5	+2·9	34·9	89·0	28th	34·5	2nd	54·5
		D. I. Khan .	594	29·534	+·071	30·125	29·639	12th	29·368	26th	·271	49·0	79·4	+7·5	42·2	−2·7	60·8	+2·4	37·2	85·3	28th	31·5	1st	53·8
		Mooltan .	420	29·691	+·071	30·115	29·769	12th	29·478	26th	·291	51·9	81·1	+7·4	47·0	−0·5	64·1	+3·5	34·1	88·3	26th	36·5	2nd	51·8
47	Sind . . .	Jacobabad .	186	29·927	+·067	30·088	30·008	8th	29·748	26th	·260	52·9	85·1	+7·2	46·2	−2·3	65·7	+2·5	38·9	96·5	27th	35·0	1st	61·5
		Hyderabad .	96	30·032	+·073	30·087	30·110	5th	29·863	26th	·247	60·3	85·8	+5·0	53·6	−0·8	69·7	+2·1	32·2	96·1	28th	42·5	9th	53·6
		Kurrachee .	30	30·113	+·085	30·094	30·208	4th	29·957	26th	·251	63·3	85·5	+5·8	57·3	−0·7	71·4	+2·6	28·2	92·4	24th & 25th.	48·7	1st & 12th.	43·7
	West Rajputana	Bikaner .	771	29·314	+·090	30·104	29·382	10th & 23rd.	29·150	26th	·232	56·2	81·6	+5·7	50·8	?	66·2	?	30·8	91·2	28th	41·1	3rd	50·1
		Pachpadra .	380	29·737	+·099	30·102	29·855	4th	29·594	26th	·261	56·8	87·1	+4·0	48·8	0	67·9	+2·0	38·3	94·5	25th, 27th & 28th.	38·8	8th	55·7
		Jodhpur .	782	29·510		30·117	29·397	4th	29·178	26th	·219	61·3	85·6		53·7		69·7		31·9	93·1	28th	41·1	7th	52·0
	VIII.—East Rajputana, Central India and Gujarat.				+·079								85·9	+3·3	55·5	+1·0	70·7	+2·2	30·4					48·4
50	East Rajputana	Jaipur .	1,431	28·654	+·088	30·116	28·733	4th	28·521	26th	·212	60·7	83·3	+4·7	53·3	+1·4	68·3	+3·1	30·0	92·7	28th	40·5	3rd	52·2
		Kotah .	819	29·259		30·122	29·358	4th	29·131	26th	·227	61·8	85·6		55·7		70·7		29·9	94·0	28th	45·0	9th	49·0
		Sambhar .	1,254	28·832	+·098	30·133	28·912	10th	28·703	26th	·209	53·1	82·6	+5·2	48·0	?	65·3	?	34·6	91·4	28th	37·0	3rd, 7th & 9th.	54·4
		Ajmer .	1,611	28·476	+·081	30·152	28·562	4th	28·348	26th	·214	53·6	84·5	?	47·6	−1·8	66·1	?	36·9	93·4	28th	35·0	8th	58·4
		Udaipur .	1,925	28·158		30·127	28·246	4th	28·062	26th	·184	60·3	83·3		51·1		67·2		32·2	91·0	25th	38·2	8th	52·8
		Deesa .	466	29·613	+·060	30·059	29·717	4th	29·514	26th	·203	63·3	91·3	+4·8	56·3	+1·2	73·8	+3·0	35·0	99·1	26th	48·1	6th	51·0
48	Kathiawar and Cutch.	Bhuj .	395	29·712	+·080	30·079	29·817	4th	29·616	26th	·201	65·8	87·4	+3·1	57·6	−0·5	72·5	+1·3	29·8	93·3	4 days.	49·0	8th	44·3
		Jamnagar .	61	30·053		30·060	30·162	4th	29·967	28th	·195	63·6	86·6		55·2		70·9		31·4	93·5	24th & 25th.	47·3	7th	46·2
		Rajkot .	429	29·653	?	30·055	29·748	4th	29·578	26th	·170	64·1	90·2	+3·0	54·3	−0·2	72·3	+1·4	35·9	97·9	24th	42·5	7th	55·4
		Veraval .	8	30·078	+·075	30·038	30·165	4th	30·000	26th	·165	66·5	82·0	?	61·1	+0·4	71·6	?	20·9	89·6	9th	54·8	7th	34·8
		Dwarka .	37	30·080		30·063	30·190	4th	29·990	26th	·200	68·9	81·8		62·4		72·1		19·4	88·9	23rd	55·6	10th	33·3
		Bhavnagar Para.	55	30·053	+·062	30·056	30·141	4th	29·963	26th	·178	65·9	90·9	?	58·1	?	74·5	?	32·8	98·6	24th	48·7	8th	49·9
49	Central India	Nowgong .	757	29·335	+·079	30·098	29·430	10th	29·175	26th	·255	56·9	81·3	+1·0	50·5	−0·6	65·9	+0·2	30·8	89·4	27th	38·5	3rd	50·9
		Indore .	1,823	28·252	+·084	30·085	28·341	4th	28·163	27th	·178	65·8	86·5	+3·2	55·0	+2·9	70·9	+3·1	31·5	95·3	25th	43·6	8th	51·7
		Neemuch .	1,630	28·461	+·095	30·123	28·548	4th	28·353	26th	·192	60·8	84·5	+3·3	52·4	+0·3	68·5	+1·8	32·1	93·5	25th	41·1	9th	52·4

I—*continued.*

in India, Burma, etc., in February 1902—continued.

Wind Direction. Number of winds from									Wind resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.						Total rainfall from 1st December 1901 to 28th February 1902.	Normal rainfall for period, 1st December to 28th February.	Variation from normal of period, 1st December to 28th February.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.		Mean velocity in miles per hour, by anemometer (uncorrected.)	Mean velocity corrected (where possible.)	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.						
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				0·07	1·37	−1·31					VI.—Upper Sub-Himalayas.		
20		1					2	5	N 56° W	1·1	1·0	4·0	− 75	63	·275	0·8	0	1·18	−1·18	0·09	0·74	−0·65	0·66	2·12	− 1·46	0·09	Bareilly	United Provinces (West Submontane),	24
27							1		W	1·3		2·0	− 35	56	·229	2·3	2	4·10	−2·10	0·33	2·21	−1·88	0·74	5·39	− 4·65	0·21	Dehra Dun.		
20		1		1	1		2	3	N 68° W	2·3		2·8	− 18	61	·233	1·4	0	2·90	−2·90	0	1·32	−1·32	0·41	3·61	− 3·20	0	Roorkee.		
17		1		1			8	1	N 84° W	1·6	1·6	2·6	− 38	55	·222	1·5	0	1·50	−1·50	0	0·92	−0·92	0·14	2·73	− 2·59	0	Meerut	United Provinces, West,	22
2	5	2	1	3		1	6	8	N 42° W					42	·194	0·6	0	1·40	−1·40	0	0·71	−0·71	0·08	2·47	− 2·39	0	Delhi	South-East Punjab,	26
18		1		1			6	2	N 82° W	2·0		2·4	− 17	53	·216	2·4	0	2·20	−2·20	0·03	1·10	−1·07	0·03	2·60	− 2·57	0·03	Lahore	Central Punjab,	28
3		10	1	4		1		9	N 22° E	4·1	3·7	3·4	+ 9	61	·258	0·1	0	1·10	−1·10	0	0·33	−0·33	0·22	1·48	− 1·26	0	Sirsa	South Punjab.	27
5	4	6	5	1			1	6	N 23° E	4·5	4·8			59	·249	2·3	1			0·19			0·35			0·15	Patiala.		
11	1	2	1	3		3	3	4	N 69° W	2·6	2·3	1·6	+ 44	54	·213	2·0	0	2·40	−2·40	0·02	1·30	−1·28	0·36	3·92	− 3·56	0·01	Ludhiana	Punjab (Submontane),	29
15	2	5	1	1			1	3	N 17° E	1·6		1·7	− 6	59	·234	1·5	0	3·50	−3·50	0·09	1·80	−1·71	0·09	4·83	− 4·74	0·09	Sialkot.		
25								3	N 45° W	2·2				59	·233	1·5	0	2·30	−2·30	0·06	2·41	−2·35	0·38	4·85	− 4·47	0·06	Umballa.		
14	6	2				2	2	2	N 25° W	3·4	3·1	2·4		47	·165	2·6	0	4·40	−4·40	0·01	2·24	−2·23	0·01	5·72	−5·71	0·01	Rawalpindi.	North Punjab.	31
																				0·01	0·46	−0·45					VII.—North-West Frontier, Indus Valley and North-West Rajputana.		
22			1		3		2		S 18° W	1·9	2·1	3·3	− 37	48	·187	3·9	1	2·90	−1·90	0·12	1·22	− 1·10	0·16	3·15	− 2·99	0·10	Peshawar	North Punjab.	31
14	2	5	2	2	1	1	1		N 68° E	3·9	4·5			36	·140	2·0	0	1·80	−1·80	0	0·69	− 0·69	0	2·05	− 2·05	0	Khushab	West Punjab.	32
4	4	5	3	4	1		2	5	N 30° E	4·7	4·0			31	·144	1·9	0	1·30	−1·30	0	0·67	− 0·67	0	1·93	− 1·93	0	Montgomery.		
20	3	2						3	N 60° W	1·2	1·3	2·0	− 35	48	·180	2·3	0	2·00	−2·00	0	0·77	− 0·77	0	1·44	− 1·44	0	D. I. Khan		
15	3	4		3	1			2	N 70° E	1·2	1·5	2·4	− 38	47	·186	1·6	0	1·20	−1·20	0	0·43	− 0·43	0	1·07	− 1·07	0	Mooltan.		
21	2	1	1					3	N 5° W	2·2	2·3	3·0	− 23	45	·187	1·5	0	0·90	−0·90	0	0·34	− 0·34	0	0·70	− 0·70	0	Jacobabad	Sind.	17
4	18	1				4		1	N 10° W	5·8	6·0	7·0	− 14	39	·211	1·0	0	0·60	−0·60	0	0·22	− 0·22	0·07	0·51	− 0·44	0	Hyderabad.		
12	1	8	2			1	2	2	N 23° E	5·1	6·4	10·5	− 39	54	·335	0·7	0	0·80	−0·80	0·01	0·31	− 0·30	0·01	1·10	− 1·09	0·01	Kurrachee.		
1	1	5	3	6	4	1	7		S 37° E	5·7		3·7	− 54	40	·186	1·3	0	0·80	−0·80	0	0·26	− 0·26	0	0·82	− 0·82	0	Bikaner	West Rajputana	51
	6	6	10	1	1	1	2	1	N 53° E	4·7	4·2	3·3	+ 27	42	·204	0	0	0·30	−0·30	0	0·08	− 0·08	0·07	0·58	− 0·51	0	Pachpadra.		
6	5	15				1	1		N 28° E	3·7	3·3			23	·130	1·6	0	0·50	−0·50	0	0·11	− 0·11	0·05	0·49	− 0·44	0	Jodhpur.		
																				0·06	0·18	−0·11					VIII.—East Rajputana, Central India and Gujarat.		
3	1	7	3	3	2		3	6	N 25° E	3·4		4·4	− 23	41	·229	1·3	0	0·50	−0·50	0	0·17	− 0·17	0	0·96	− 0·96	0	Jaipur	East Rajputana.	50
18	1	1		2		3	3		N 59° W	1·8	2·1			41	·229	1·7	0	0·50	−0·50	0·08	0·25	− 0·17	0·46	0·69	− 0·23	0·08	Kotah.		
19	1	5	2		1				N 57° E	2·9		5·3	− 45	38	·165	1·3	0	0·50	−0·50	0	0·18	− 0·18	0	0·92	− 0·92	0	Sambhar.		
19		3	1	1				4	N 13° E	2·0		2·5	− 20	50	·218	1·9	0	0·70	−0·70	0	0·24	− 0·24	0·04	0·95	− 0·91	0	Ajmer.		
26		1						1	N	1·4	1·4			53	·276	1·6	0	0·30	−0·30	0			0·04			0	Udaipur.		
	5	17	3	2		1			N 47° E	7·1		9·0	− 21	24	·141	0·8	0	0·27	−0·27	0	0·07	− 0·07	0·07	0·28	− 0·21	0	Deesa.		
	1	2	2	2	2	6	10	3	S 75° W	7·4		6·7	+ 10	58	·388	0·8	0	0·30	−0·30	0	0·09	− 0·09	0·11	0·23	− 0·12	0	Bhuj	Kathiawar and Cutch.	45
5		5	2	7	3	4	1	1	S 42° E	8·5	10·1			55	·342	0·9	0			0			0·16			0	Jamnagar.		
2	1	2	7	2	3	2	2	7	N 45° E	5·5	5·4	6·2	− 13	42	·260	2·0	0	0·30	−0·30	0	0·09	− 0·09	0·01	0·17	− 0·16	0	Rajkot.		
4	12	4	1					7	N 3° W	8·5		5·8	+ 47	50	·332	1·8	0	0·10	−0·10	0	0·01	− 0·01	0	0·10	− 0·10	0	Veraval.		
	10	9	2				1	6	N 9° E	12·9				70	·494	1·2	0			0			0·01			0	Dwarka.		
1	2				1	4	4	10	N 64° W	6·9	6·5			35	·233	1·9	0	0·20	−0·20	0	0·07	− 0·07	0	0·21	− 0·21	0	Bhavnagar Para.		
9	2		7			5	5		S 45° W	1·6	1·6	1·7	− 6	63	·316	2·4	2	1·00	+1·00	0·88	0·48	+ 0·40	1·23	1·74	− 0·51	0·54	Nowgong	Central India	49
10	1	3	1	5	2	1	1	4	S 81° E	3·8		3·0	+ 27	41	·274	2·9	0	0·50	−0·50	0	0·18	− 0·18	0·26	0·51	− 0·25	0	Indore.		
	3	15	9		1				N 57° E	6·1	5·5	9·1	− 40	38	·212	2·2	0	0·50	−0·50	0·02	0·17	− 0·15	0·54	0·66	− 0·12	0·02	Neemuch.		

Table

Abstract of Observations taken at 8 A.M. at 227 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
45	Gujarat	Surat	39	30·055	+·066	30·038	30·126	4th & 5th.	29·978	26th	·148	68·3	93·0	+3·3	61·7	P	77·4	P	31·3	100·7	23rd	55·0	7th	45·7
		Ahmedabad	163	29·929	+·071	30·047	30·027	4th	29·833	26th	·194	68·5	92·2	+4·7	62·2	+1·9	77·2	+3·3	30·0	99·2	25th	51·7	8th	47·5
22	United Provinces, West.	Agra	555	29·546	+·080	30·097	29·645	12th	29·401	26th	·244	58·2	82·4	+3·8	53·8	+1·5	68·1	+2·6	28·6	91·0	28th	44·4	8th	46·6
21	United Provinces, Central.	Jhansi	858	29·248	+·088	30·111	29·343	10th	29·097	26th	·246	61·2	82·8	+1·6	57·8	+2·4	70·3	+2·0	25·0	92·2	26th & 28th.	49·2	9th	43·0
	IX.—Deccan				+·085								89·9	+1·3	59·7	+0·4	74·8	+0·9	30·2					46·1
38	Bombay (Deccan)	Belgaum	2,539	27·517	+·067	30·015	27·590	17th	27·431	27th	·159	70·9	88·3	−0·3	60·8	+1·2	74·6	+0·5	27·5	93·3	28th	54·9	2nd	38·4
		Sholapur	1,590	28·490	+·083	30·059	28·576	18th	28·381	27th	·195	72·9	93·0	P	64·0	+1·8	78·5	P	29·0	98·2	28th	55·6	7th	42·6
		Poona	1,840	28·228	+·063	30·080	28·305	4th	28·148	27th	·157	63·1	93·4	+2·1	57·4	+0·3	75·4	+1·2	36·0	97·5	27th	46·5	7th	51·0
		Bijapur	1,946	28·138	P	30·059	28·203	17th	28·046	2nd & 27th,	·157	71·7	92·0	+1·6	64·8	+0·6	78·4	+1·1	27·2	97·4	28th	54·6	5th	42·8
40	Khandesh	Malegaon	1,430	28·653	+·081	30·092	28·747	4th	28·565	27th	·182	64·4	92·8	+2·9	56·6	+1·2	74·7	+2·1	36·2	98·9	25th & 26th.	45·2	7th	53·7
		Ahmednagar	2,152	27·948	P	30·089	28·034	4th	27·869	27th	·165	68·8	90·3	+2·2	57·1	+2·0	73·7	+2·1	33·2	94·4	26th & 27th.	47·4	7th	47·0
41	Berar	Akola	930	29·152	+·087	30·068	29·254	4th	29·040	27th	·214	67·2	92·9	+2·2	59·1	+1·6	76·0	+1·9	33·8	99·4	26th	47·9	4th	51·5
		Amraoti	1,215	28·873	P	30·075	28·960	4th	28·764	26th	·196	70·9	91·8	+1·7	64·0	P	77·9	P	27·8	97·2	4 days	57·0	13th	40·2
42	Central Provinces (West).	Khandwa	1,044	29·037	+·082	30·083	29·137	4th	28·937	27th	·200	64·4	91·7	+2·9	57·3	+1·4	74·4	+2·2	34·4	99·2	25th	45·1	9th	54·1
		Hoshangabad	1,006	29·094	+·092	30·110	29·199	4th	28·971	26th	·228	61·1	86·7	+1·3	56·6	+0·6	71·6	+1·0	30·1	92·8	24th & 25th.	45·2	3rd	47·6
		Nagpur	1,025	29·061	+·096	30·082	29·148	4th	28·930	26th	·218	65·7	90·7	+1·4	59·7	−0·3	75·2	+0·6	31·0	98·1	27th	50·7	11th	47·4
43	Central Provinces (Central).	Chanda	634	29·474	P	30·080	29·572	4th	29·337	26th	·235	66·8	92·0	P	56·7	P	74·4	P	35·3	99·2	26th, 27th & 28th.	45·1	11th	54·1
		Seoni	2,033	28·045	+·088	30·091	28·119	4th	27·919	26th	·200	63·7	86·2	+2·4	55·4	0	70·8	+1·2	30·8	93·8	27th & 28th.	43·5	11th	50·3
		Jubbulpore	1,327	28·748	+·084	30·102	28·345	4th	28·608	26th	·237	58·5	84·9	+2·5	50·9	−1·5	67·9	+0·5	34·0	94·0	26th	38·4	9th	55·6
		Saugor	1,807	28·281	P	30·102	28·367	4th	28·150	26th	·217	65·3	82·9	+1·6	58·7	+3·3	70·8	+2·5	24·2	91·9	26th	50·1	10th	41·8
49	Central India	Sutna	1,040	29·047	+·092	30·105	29·134	12th	28·898	26th	·236	58·6	81·5	+1·9	53·0	+0·7	67·3	+1·3	28·5	90·4	20th	41·2	9th	49·2
44	Central Provinces (East).	Raipur	970	29·117	+·092	30·077	29·213	4th	28·964	26th	·249	66·4	88·3	+0·9	58·1	P	73·2	P	30·2	98·9	20th	49·4	4th	49·5
		Sambalpur	486	29·611	+·083	30·069	29·719	4th	29·458	26th	·261	65·1	88·8	+0·8	58·1	−1·8	73·5	−0·5	30·7	96·6	27th	45·6	11th	51·0
39	Hyderabad (North).	Aurangabad	1,905	28·188		30·071	28·256	4th	28·097	27th	·159	71·2	90·0		61·8†		76·1†		28·2	96·9	27th	51·7	4th	45·2
		Indur		28·780			28·866	18th	28·709	28th	·157	70·6	90·7		55·2		73·4		35·5	97·1	28th	49·1	4th & 12th.	48·0
		Bidar	2,165?	29·907?		30·027?	27·984	18th	27·812	27th	·172	75·8	90·3		64·7		77·5		25·6	95·5	28th	60·2	2nd	35·3
53	Hyderabad (South).	Gulbarga	1,502	28·573	+·093	30·051	28·655	17th	28·471	27th	·184	73·5	93·1	+0·5	64·2	−0·1	78·6	+0·2	28·9	98·8	28th.	56·4	4th	42·4
		Raichur	1,326	28·743?	P	30·046?	28·828	17th & 18th.	28·644	27th	·184	73·1	91·5	−1·3	67·3	−0·9	79·4	−1·1	24·2	97·1	28th	61·2	7th	35·9
		Hyderabad (Deccan).	1,690	28·388	P	30·070	28·482	17th	28·271	27th	·211	68·4	90·4	−0·9	62·5	−0·9	76·5	−0·9	27·9	96·4	28th.	56·3	4th.	40·1
		Secunderabad	1,787	28·286	P	30·065	28·365	17th	28·165	27th	·200	68·2	91·2	−0·1	63·2	−0·2	77·2	−0·2	28·0	99·2	27th	56·2	5th	43·0
		Hanumkonda	871	29·210		30·055	29·303	17th	29·073	26th	·230	70·4	91·4		65·0		78·2		26·4	98·4	27th.	57·2	4th	41·2
	X.—West Coast				+·071								87·5	+1·0	71·3	+0·6	79·4	+0·8	16·2					25·8
37	Konkan	Bombay	37	30·046	+·065	30·024	30·119	17th	29·980	26th & 28th,	·139	73·0	85·0	+2·4	70·1	+1·4	77·6	+1·9	14·7	90·5	9th	64·0	7th	26·5
		Ratnagiri	110	29·957	+·075	30·007	30·033	17th	29·855	2nd	·178	73·8	87·7	+1·3	68·5	+1·2	78·1	+1·3	19·2	96·9	5th	62·9	7th & 8th	34·0
		Mormugao	60	30·010	+·077	30·005	30·079	17th	29·926	28th	·153	74·6	87·8	+2·9	72·4	+1·2	80·2	P	15·4	92·5	5th	67·3	8th	25·2
		Goa	199									74·5	84·4	P	71·9	+1·8	78·2	P	12·5	91·0	5th	67·0	8th.	24·0
		Karwar	44	30·029	+·071	30·006	30·082	18th	29·942	27th	·140	70·3	87·7	+1·4	67·4	+0·1	77·6	+0·8	20·3	92·3	5th	62·0	5th	30·3
33	Malabar	Cochin	11	30·051	+·070	29·989	30·107	17th	29·933	27th	·124	76·5	92·3	P	73·4	−0·3	82·9	P	18·9	94·5	14th, 21st & 26th.	69·7	1st & 2nd	24·8
		Calicut	27	30·036	+·067	29·993	30·088	24th	29·961	27th	·127	76·4	88·6	−0·1	72·0	−0·6	80·3	−0·4	16·6	90·3	19th	67·0	2nd	23·3
		Mangalore	65	29·993	P	29·991	30·047	24th	29·926	28th	·121	77·3	88·5	+0·4	72·1	−0·2	80·3	+0·1	16·4	94·2	17th	67·5	5th	26·7
		Trivandrum	198	29·859	P	29·990	29·915	17th	29·788	27th	·127	76·3	85·4	+0·4	74·0	+1·6	79·7	+1·0	11·4	87·5	15th	70·0	6th & 7th.	17·5

* Man of 24 days.

]—*continued.*

in India, Burma, etc., in February, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected.)	Mean velocity corrected (where possible.)	Normal.	Percentage variation.	Hygrometry 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec. 1901 to 28th February 1902.	Normal rainfall for period, 1st Decr. to 28th February.	Variation from normal of period, 1st Decr. to 28th February.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
3	3	4	8	5	4			1	N 86° E	5·1	4·8	5·4	− 11	55	·394	0·9	0	0·10	−0·10	0	0·08	—0·08	0·50	0·14	+ 0·36	0	Surat	Gujarat.	15
2	4	9	3	3		2		5	N 30° E	2·4	3·9			31	·221	1·6	0	0·30	—0·30	0	0·14	−0·14	0·02	0·24	− 0·22	0	Ahmedabad.		
7		4		5		5		7	N 71° W	3·0	3·5	4·0	− 13	53	·269	1·1	0	0·60	−0·60	0	0·29	−0·29	0·22	1·11	− 0·89	0	Agra	United Provinces West.	22
6	1	3		1		12	3	2	N 65° W	3·7	4·1	2·7	+ 52	61	·313	1·0	1	0·80	+0·20	0·19	0·41	−0·22	1·92	1·27	+ 0·65	0·17	Jhansi	United Provinces, Central.	21
																				0·05	0·27	−0·22					IX.—Deccan.		
4	4	7	7	4	1		1		N 69° E	8·7		10·0	− 13	42	·319	2·1	0	0·10	− 0·10	0	0·03	− 0·03	0·02	0·19	− 0·17	0	Belgaum	Bombay (Deccan).	38
	1	2	6	16		2		1	S 75° E	9·1	11·0	6·5	+ 69	38	·306	2·3	0	0·10	− 0·10	0	0·03	− 0·03	0	0·53	− 0·53	0	Sholapur.		
9		1		2	1	4	2	9	S 78° W	6·5	7·3	6·3	+ 16	50	·290	2·8	0	0·10	− 0·10	0	0·06	− 0·06	0·10	0·29	− 0·19	0	Poona.		
26	1			1					N 67° W					53	·417	2·5	0	0·20	− 0·20	0	0·07	− 0·07	0	0·10	− 0·10	0	Bijapur.		
	1					4	13	10	N 77° W	5·0	5·8	5·0	+ 16	34	·218	3·7	0	0·10	− 0·10	0	0·03	− 0·03	0·74	0·40	+ 0·34	0	Malegaon	Khandesh.	40
5	3	2	1	5	2		1	9	N 15° W	4·9	6·0			46	·336	2·6	0	0·30	— 0·30	0	0·40	− 0·40	0·67	0·91	− 0·24	0	Ahmednagar.		
13			6	2	2	1	4		S 34° E	4·3	4·2	3·8	+ 11	36	·251	2·4	0	0·30	− 0·30	0	0·17	− 0·17	0·16	1·25	− 1·09	0	Akola	Berar.	41
	3	8	7	2	2	5	1		N 79° E	7·4	6·6	3·7	+ 78	36	·294	2·9	0	0·60	− 0·60	0	0·21	− 0·21	0	1·13	− 1·13	0	Amraoti.		
10	1	2	5	4	1	1	1	3	E	5·3		3·6	+ 47	42	·257	2·6	0	0·30	− 0·30	0·01	0·05	− 0·04	0·47	0·74	— 0·27	0·01	Khandwa	Central Provinces (West).	42
4		19		4		1			N 57° E	3·8	3·9	2·9	+ 34	48	·272	2·5	1	0·50	+ 0·50	0·20	0·27	− 0·07	0·40	1·06	− 0·66	0·13	Hoshangabad.		
8	2	4	5	1	1	3		4	N 43° E	4·0		5·1	− 22	40	·261	2·7	0	0·90	− 0·90	0	0·38	− 0·38	0	1·29	− 1·29	0	Nagpur.		
16	1	2	4	3	1			1	E	1·4		2·7	− 48	52	·354	1·9	0	0·60	− 0·60	0	0·49	− 0·49	0	1·13	− 1·13	0	Chanda	Central Provinces Central).	43
	6	10		3	4	4	1		N 52° E	5·2		2·9	+ 79	45	·273	2·1	0	1·50	− 1·50	0	0·88	− 0·88	0·37	1·93	− 1·56	0	Seoni.		
11		1	1	7	6		1	1	S 28° E	2·1	1·8	2·5	− 28	60	·311	1·9	1	1·10	− 0·10	0·19	0·56	− 0·37	0·46	1·61	− 1·15	0·15	Jubbulpore.		
	1	1	6	15	3	1	1		S 51° E	5·4	6·2	2·8	+121	32	·216	2·6	1	0·80	+ 0·20	0·28	0·41	− 0·13	0·68	1·75	− 1·07	0·12	Saugor.		
7	1				1	2	10	7	N 85° W	2·7	2·9	4·7	− 38	49	·261	2·7	1	1·50	− 0·50	0·53	0·65	− 0·12	1·45	2·00	− 0·55	0·35	Sutna	Central India	49
17	2	3	1		1	1		3	N 3° E	3·1	2·9	3·7	− 22	42	·283	1·5	0	0·70	− 0·70	0	0·35	− 0·35	0	0·80	− 0·80	0	Raipur	Central Provinces (East).	44
	5	9	4	4	2	1	1	2	N 54° E	2·1	2·1	1·7	+ 21	58	·371	0·5	0	1·00	— 1·00	0·01	0·51	− 0·50	0·01	1·03	− 1·02	0·01	Sambalpur.		
15		2	6	2		1	1	1	E	7·2	7·1			30	·257	1·7	0	0·20	— 0·20	0	0·11	− 0·11	0·19	0·84	— 0·65	0	Aurangabad.	Hyderabad (North).	39
									?					49	·368	1·5	0	0·40	— 0·40	0	0·13	− 0·13	0	0·51	− 0·51	0	Indur.		
4		2		12		7		3	S 17° E	10·7	9·0			45	·405	0	0	0·40	— 0·40	0	0·18	− 0·18	0	0·72	− 0·72	0	Bidar.		
8	3	5	6	1	3	1	1		N 77° E	8·0	7·6			62	·517	1·4	0	0·40	— 0·40	0	0·29	− 0·29	0	0·36	− 0·36	0	Gulbarga	Hyderabad (South).	53
5		1	1	16	4			1	S 42° E	9·3	8·8			53	·440	1·0	0	0·20	— 0·20	0	0·24	− 0·24	0	0·24	− 0·24	0	Raichur.		
23	1		3	1					N 85° E	3·8	3·7			65	·455	1·5	0			0	0·15	− 0·15	0	0·38	− 0·38	0	Hyderabad (Deccan).		
5	1	4	15	1	1			1	N 81° E	5·0		3·8	+ 32	66	·441	0·3	0	0·40	— 0·40	0	0·15	− 0·15	0	0·38	− 0·38	0	Secunderabad.		
2	1		1	15	8	1			S 30° E	9·8	8·3			68	·509	3·5	0	0·60	− 0·60	0			0			0	Hanumkonda.		
																				0·03	0·21	−0·17					X.—West Coast.		
	8	10	6	1				3	N 35° E	8·8		10·7	− 18	72	·597	2·1	0	0·10	−0·10	0	0·02	− 0·02	0	0·18	− 0·18	0	Bombay	Konkan.	37
19	2		3	3				1	N 82° E	3·3	3·3	9·8	− 66	61	·530	2·5	0	0·10	−0·10	0	0·03	— 0·03	0	0·23	− 0·23	0	Ratnagiri.		
	3	2	14	6	1			2	N 88° E	7·7				82	·705	1·7	0			0	0·05	− 0·05	0	0·05	− 0·05	0	Mormugao.		
	1	8	18	1					N 76° E					74	·640	2·0	0			0	0·06	− 0·06	0·03	0·31	− 0·28	0	Goa.		
4	1	16	7						N 56° E	4·7				80	·585	1·0	0	0	0	0	0·02	− 0·02	0	0·18	− 0·18	0	Karwar.		
3	16	5	1					3	N 6° E	5·2				71	·656	1·6	1	1·70	−0·70	0·17	0·87	− 0·70	1·03	3·07	− 2·04	0·17	Cochin	Malabar.	33
	2	12	14						N 65° E	8·1	10·2			78	·709	2·0	0	0·40	—0·40	0	0·15	− 0·15	3·78	1·31	+ 2·47	0	Calicut.		
11			9	7	1				S 66° E	2·6		3·5	−26	71	·665	1·9	0	0·10	−0·10	0	0·03	− 0·03	1·31	0·53	+ 0·81	0	Mangalore.		
13	4	6	1	1			2	1	N 22° E	4·5				74	·672	2·4	3	1·10	−0·10	0·14	0·61	−0·50	3·73	3·51	+ 0·22	0·14	Trivandrum.		

Table

Abstract of Observations taken at 8 A.M. at 227 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure 8 A.M., in inches.								Temperature of Air.											
				Mean actual pressure (reduced to 32°.)	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	XI.—South India				+·085								88·0	−1·2	66·1	−1·0	77·1	−1·1	21·9					33·0
57	Madras (South)	Pamban	37	30·040	+·078	30·004	30·110	23rd	29·932	27th	·178	78·3	84·6	−0·2	71·7	−3·2	78·2	−1·7	12·9	89·8	2nd	69·2	12th	20·6
		Tinnevelly	168	29·931	?	30·032	30·000	17th	29·813	27th	·187	76·2	90·5	−1·5	71·7	−1·0	81·1	−1·3	18·8	96·2	28th	63·9	27th	32·3
		Madura	447	29·646	+·082	30·039	29·706	17th & 23rd.	29·535	27th	·171	75·5	90·0	−2·0	68·8	−0·7	79·4	−1·4	21·2	94·9	28th	63·7	7th	31·2
		Periya Kulam	944	29·142			29·205	17th	29·040	27th	·165	71·4	90·4		62·7		76·1		27·7	95·5	28th	57·5	1st	38·0
34	Madras (South Central)	Salem	940	29·167	+·065	30·068	29·227	12th	29·058	27th	·169	73·3	91·6	−2·0	65·1	−0·4	78·4	−1·2	26·5	97·7	28th	58·9	1st	38·8
		Coimbatore	1,348	28·741	+·078	30·062	28·806	12th	28·634	27th	·172	71·4	89·7	−2·3	64·9	−0·6	77·3	−1·5	24·8	93·4	28th	58·7	1st	37·7
35	Coorg	Mercara	3,781	26·360	+·075		26·405	18th	26·290	1st	·115	63·3	80·8	−0·4	59·1	+0·3	70·0	−0·1	21·7	85·0	28th	55·1	2nd	29·9
36	Mysore	Chitaldroog	2,405	27·666?	+·076?	30·007?	27·738	17th	27·589	26th	·149	71·6	89·3	0	65·2	−0·7	77·3	−0·4	24·1	93·6	28th	60·0	17th	33·6
		Bangalore	3,021	27·084	+·068	30·056	27·142	17th	26·999	27th	·143	66·1	85·1	−0·7	59·3	−0·3	72·2	−0·5	25·8	90·3	27th & 28th	54·4	5th	35·9
		Hassan	3,091	27·022	+·080	30·057	27·076	17th	26·955	2nd	·121	69·0	84·5	−1·8	56·2	−1·5	70·4	−1·7	28·3	88·9	28th	50·2	6th	38·7
		Mysore	2,518	27·575	?	30·049	27·626	17th	27·496	27th	·130	69·9	87·6†	−1·2†	62·0	−0·9	74·8†	−1·1†	25·6	93·1	27th	56·4	3rd	36·7
56	Madras (East Coast, South)	Negapatam	31	30·059	+·078	30·020	30·122	23rd	29·937	27th	·185	78·1	83·6	−0·8	73·4	?	78·5	?	10·2	86·2	8th & 28th.	67·5	1st & 6th.	18·7
		Cuddalore	12	30·086	+·085	30·028	30·155	17th	29·965	27th	·190	73·6	84·5	−0·9	68·7	−0·2	76·6	−0·6	15·8	90·2	10th	63·2	6th	27·0
		Trichinopoly	255	29·846	+·077	30·041	29·925	12th	29·740	27th	·185	74·0	89·9	−2·4	68·0	−0·4	79·0	−1·4	21·9	95·0	28th	61·9	1st	33·1
		Madras	22	30·088	+·083	30·041	30·165	17th	29·967	27th	·198	75·1	86·3	−0·6	67·3	−0·7	76·8	−0·7	19·0	90·0	27th	62·0	6th	28·0
		Vellore	707	29·390		30·062	29·460	17th	29·276	27th	·184	68·3	87·7		64·2		75·9		23·5	93·4	28th	57·4	3rd	36·0
55	Madras (East Coast, Central)	Nellore	71	30·044	+·111	30·050	30·126	17th	29·905	26th	·221	74·0	88·8	−1·8	68·2	−0·9	78·5	−1·4	20·6	96·3	27th	64·1	1st	32·2
		Masulipatam	15	30·115	+·106	30·065	30·206	17th	29·987	27th	·219	73·4	86·4	−0·5	66·1	−2·2	76·3	−1·4	20·3	96·1	26th	63·2	1st & 2nd.	32·9
54	Madras (Central)	Cuddapah	433	29·655?	+·092?	30·036?	29·739	17th	29·527	27th	·212	76·7	93·8	−1·3	67·2	−1·9	80·5	−1·6	26·6	100·7	28th	61·4	1st	39·3
		Kurnool	924	29·146?	+·082?	30·045?	29·229	17th	29·037	27th	·192	68·1	94·2	−0·3	62·3	?	78·3	?	31·9	99·7	28th	57·3	4th	42·4
		Bellary	1,475	28·607	+·092	30·055	28·688	17th	28·498	27th	·190	73·7	93·9	−0·3	64·5	−0·9	79·3	−0·6	29·4	100·0	28th	59·2	7th	40·8
52	Madras (East Coast, North)	Cocanada	26	30·093	+·096	30·054	30·178	17th	29·972	26th	·206	73·6	85·2	−0·6	68·3	−1·3	76·8	−1·0	16·9	96·1	26th	63·5	1st	32·6
		Waltair (Vizag.)	226	29·890	+·092	30·063	29·984	17th	29·758	26th	·226	75·2	83·7	−2·5	70·0	?	76·8	?	13·7	88·9	26th	65·9	2nd	23·0
		Gopalpur	21	30·088	?	30·049	30·195	17th	29·942	27th	·253	71·6	84·0	+0·5	65·5	?	74·8	?	18·5	88·8	21st	60·1	5th	28·7
	XII.—Hill Stations.																							
		Pishin											62·6		23·7		43·2		38·9	76·3	28th	10·0	1st & 2nd.	66·3
48	Baluchistan	Quetta	5,502	24·787	+·127		24·862	5th	24·683	27th	·179	37·2	61·6	+8·5	29·8	−1·9	45·8	+3·3	31·8	73·7	28th	16·8	2nd	56·9
		Kalat										43·5	60·7	+4·7	17·3	−7·6	39·0	−1·5	43·4	72·1	28th	5·4	2nd	66·7
		Chaman	4,311	25·866	+·143		25·986	5th	25·709	27th	·277	49·0	64·7	+7·7	40·7	?	52·7	?	24·0	76·3	28th	21·1	1st	55·2
40	Punjab and North-West Frontier Provinces	Leh	11,503	19·768	+·157		19·939	23rd	19·609	2nd	·330	19·5	38·7	+7·3	14·9	+5·1	26·8	+6·2	23·8	49·5	28th	5·0	8th	44·5
		Srinagar	5,204	25·067	+·113		25·171	22nd	24·931	1st	·240	30·7	57·4	+15·1	27·7	+0·4	42·6	+7·8	29·7	63·9	5 days	17·1	8th	46·8
		Sonamarg		21·941			22·039	23rd	21·780	1st	·259	21·1	38·9		16·0		27·5		22·9	48·1	25th	−3·4	1st	51·5
		Astor (Kashmir)	7,955	22·688			22·880	10th	22·510	25th	·370	26·2	47·0†		23·0		35·2†		24·0	58·5	25th	13·5	3rd	45·0
		Minimarg		21·459			21·583	23rd	21·314	5th	·269	18·1	40·1		12·3		26·2		27·8	52·9	25th	−6·0	8th	58·9
		Skardu		23·036			23·251	10th	22·831	25th	·420	29·0	47·3		26·3		36·8		21·0	56·0	25th	18·1	3rd & 4th.	37·9
		Dras		20·901			21·067	23rd	20·739	5th	·328	−0·8	24·2		−9·2		7·5		33·4	38·8	28th	−25·9	3rd	64·7
		Gilgit		25·360			25·560	9th	25·106	25th	·454	43·6	56·9	+5·8	38·9	+2·5	47·9	+4·2	18·0	64·4	23rd	30·7	3rd	33·7
		Chitral		24·545			24·625	15th	24·400	24th	·225	38·4	57·5		33·3		45·4		24·2	69·1	22nd	27·0	1st & 2nd.	42·1
		Killa Drosh										41·1	56·8		38·5		47·7		18·3	65·3	24th	30·2	1st	35·1
		Para Chinar	6,000	24·585			24·666	12th	24·463	1st	·203	43·7	58·7		35·3		47·0		23·4	64·7	23rd	27·6	2nd	37·1
		Cherat		25·855	+·126		25·930	10th	25·734	1st	·196	49·9	61·9	+9·8	45·1	+5·0	53·5	+7·4	16·8	68·8	24th & 25th.	37·0	14th	31·8

† Mean of 27 days.

l—continued.

in India, Burma, etc., in February, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec. 1901 to 28th Feb. 1902.	Normal rainfall for period, 1st Dec. to 28th Feb.	Variation from normal of period, 1st December to 28th February.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				0·38	0·38	− 0·01					**XI.—South India.**		
	1	21	6						N 53° E	8·4	8·9			78	·757	2·9	2	0·50	+ 1·50	4·50	0·73	+ 3·77	14·15	12·37	+ 1·78	3·50	Pamban	Madras (South).	57
	13	3					2	10	N 18° W	4·9	4·7			83	·758	4·4	2	1·80	+ 0·20	0·73	1·48	− 0·75	9·17	6·25	+ 2·92	0·35	Tinnevelly.		
2	12	9						5	N 13° E	3·9	3·9	5·0	− 22	78	·696	3·2	0	0·90	− 0·90	0·02	0·50	− 0·48	3·58	2·62	+ 0·96	0·02	Madura.		
20				1	2	3	2		S 31° W	2·5	2·7			70	·542	3·6	1	1·40	− 0·40	0·12	0·97	− 0·85	4·11	3·16	+ 0·95	0·12	Periya Kulam		
12		2	14						N 84° E	5·2	4·7	5·6	− 16	77	·648	3·3	2	0·50	+ 1·50	0·41	0·33	+ 0·08	1·66	1·82	− 0·16	0·30	Salem	Madras (South Central).	34
1		1	22				4		N 88° E	1·1	1·0	3·2	− 69	83	·643	5·5	0	0·80	− 0·80	0	0·46	− 0·46	4·06	1·76	+ 2·30	0	Coimbatore.		
17	4	7							N 29° E	4·2	3·9	4·0	− 3	72	·423	5·9	1	0·30	+ 0·70	0·28	0·14	+ 0·14	0·97	0·67	+ 0·30	0·28	Mercara	Coorg.	35
2			10	11	2	1	2		S 55° E	7·5	6·5			52	·450	2·2	0	0·10	− 0·10	0	0·07	− 0·07	0·28	0·17	+ 0·11	0	Chitaldroog	Mysore.	36
		2	20	2	1	2	1		S 83° E	10·0	8·7	3·6	+142	64	·408	2·3	0	0·20	− 0·20	0	0·09	− 0·09	0·94	0·71	+ 0·23	0	Bangalore.		
1		6	11	9	1				S 82° E	3·0	2·6			63	·448	2·8	0	0·10	− 0·10	0	0·06	− 0·06	0·64	0·24	+ 0·40	0	Hassan.		
		9	9	4	2	1	2	1	N 84° E	8·1	8·7			66	·481	3·8	0	0·30	− 0·30	0	0·22	− 0·22	0·61	0·39	+ 0·22	0	Mysore.		
4	2	17	1				1	3	N 32° E	12·3	10·8	3·6	+200	78	·768	4·6	1	0·80	+ 0·20	0·12	0·58	− 0·46	16·40	14·74	+ 1·66	0·12	Negapatam	Madras (East Coast, South).	56
28									Calm	0·4	0·5			88	·732	5·4	3	0·70	+ 2·30	0·87	0·71	+ 0·16	9·61	9·70	− 0·09	0·48	Cuddalore.		
19	2	7							N 36° E	3·3		4·1	− 20	84	·709	2·1	2	0·50	+ 1·50	1·29	0·79	+ 0·50	8·01	3·82	+ 4·19	0·95	Trichinopoly.		
	8	8	3	1	4	1		3	N 32° E	4·9		5·0	− 2	82	·718	2·2	0	0·60	− 0·60	0·05	0·23	− 0·18	16·00	6·77	+ 9·23	0·05	Madras.		
25			3						E	3·0	3·0			87	·606	2·8	1	0·50	+ 0·50	0·52	0·13	+ 0·39	13·41	3·50	+ 9·91	0·52	Vellore.		
7	6			2	4		1	8	N 40° W	3·4				82	·694	3·0	0	0·30	− 0·30	0	0·10	− 0·10	4·40	2·29	+ 2·11	0	Nellore	Madras (East Coast, Central).	55
3	15	8	2						N 26° E			5·1		88	·722	1·9	0	0·30	− 0·30	0	0·22	− 0·22	0·11	1·07	− 0·96	0	Masulipatam		
		10	9	6		1	1	1	N 81° E					62	·570	1·6	0	0·20	− 0·20	0	0·07	− 0·07	1·53	1·37	+ 0·16	0	Cuddapah	Madras (Central).	54
26			2						E					60	·414	2·1	0	0·10	− 0·10	0	0·02	− 0·02	0·09	0·21	− 0·17	0	Kurnool.		
8			2	7	8	2		1	S 14° E	4·0	4·2	4·0	+ 5	56	·463	2·8	0	0·10	− 0·10	0	0·02	− 0·02	0	0·22	− 0·22	0	Bellary.		
6	8	3					1	10	N 19° W	7·5	6·3			77	·631	2·9	0	0·50	− 0·50	0	0·37	− 0·37	0	1·28	− 1·28	0	Cocanada	Madras (East Coast, North).	52
2	1	6	1			12	6		S 71° W	7·8				69	·600	3·9	0	0·50	− 0·50	0	0·17	− 0·17	0·08	2·13	− 2·05	0	Waltair (Vizag.)		
	12					2		14	N 29° W	11·1	10·9	9·6	+14	76	·582	0·5	0	0·90	− 0·90	0	0·48	− 0·48	0·41	1·35	− 0·94	0	Gopalpur.		
																											XII.—Hill Stations.		
																	0	6·40	− 6·40	0·13	2·86	− 2·73	0·38	6·22	− 5·84	0·09	Pishin	Baluchistan.	48
25		1			1		1		S 45° W	2·0	2·1	4·4	− 52	63	·139	2·1	0	6·40	− 6·40	0·04	2·21	− 2·17	0·11	5·05	− 4·94	0·02	Quetta.		
	3		2		22		1		S 3° E					48	·128		0	5·20	− 5·20	0	1·26	− 1·26	0·02	2·70	− 2·68	0	Kalat.		
6	1		5	13	1		1	1	S 31° E	6·8	7·5			58	·208	2·5	0	4·30	− 4·30	0·07	1·75	− 1·68	0·33	3·97	− 3·64	0·06	Chaman.		
	3	13	8	1	1	1	1		N 60° E	2·7				63	·071	4·3	0	1·00	− 1·00	0·01	0·35	− 0·34	0·11	0·85	− 0·74	0·01	Leh	Punjab and North-West Frontier Provinces.	30
10	3		1	7	5			2	S 40° E	3·1	3·3			85	·150	3·7	1	6·40	− 5·40	0·61	2·80	− 2·19	0·81	7·20	− 6·39	0·54	Srinagar.		
12	2	3	3	4	2	1		1	S 84° E	4·4	4·0			77	·094	2·6	6			2·08			5·65			0·52	Sonamarg		
5					12	10	1		S 23° W	5·9				63	·093	4·4	0			0·14			0·99			0·08	Astor (Kashmir).		
11			9	7		1			S 67° E	6·1	6·5			56	·062	3·8	7			2·10			7·90			0·45	Minimarg		
21		1	1			2	3		S 80° W	2·4	2·9			94	·153	5·5	0	2·60	− 2·60	0	1·15	− 1·15	0·26	3·57	− 3·31	0	Skardu.		
28									Calm	0·3	0·3			99	·053	4·3	2	8·20	− 6·20	0·57	2·57	− 2·00	2·15	8·74	− 6·59	0·17	Dras.		
21						3	4		S 72° W	3·2	2·9			39	·114	5·1	0	0·90	− 0·90	0	0·16	− 0·16	0·12	0·46	− 0·34	0	Gilgit.		
25			2						E					66	·155	3·7	0			0·15			0·53			0·08	Chitral.		
21						1	6		S 63° W					49	·126	3·9	1			0·12			1·01			0·10	Killa Drosh.		
24						2	2		S 72° W	3·6				53	·148	5·0	1	4·80	− 3·80	0·57	1·93	− 1·36	0·62	3·35	− 2·73	0·54	Para Chinar.		
	7	6		1	1			13	N 12° W	11·4	10·6			30	·112	3·2	1			0·10	3·31	− 3·21	0·10	6·38	− 6·28	0·10	Cherat.		

Table

Abstract of Observations taken at 8 A.M. at 227 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
30	Punjab—(*concld.*)	Murree	6,333	23·965	+·137		24·051	18th	23·806	1st	·245	46·1	55·7	+7·7	39·1	+4·6	47·4	+6·2	16·6	61·7	23rd	30·5	2nd	31·2
		Poo											51·1		30·1		40·6		21·0	57·3	19th	25·0	6th & 21st.	32·3
		Simla	7,224	23·210	+·132		23·315	17th	23·059	2nd	·256	43·5	52·1	+6·2	40·5	+4·9	46·3	+5·6	11·6	58·6	24th	33·1	7th	25·5
25	United Provinces.	Chakrata	7,022	23·377	+·109		23·490	17th	23·217	2nd	·273	42·6	57·4	+6·2	40·1	+4·0	48·8	+5·1	17·3	64·7	19th	33·9	20th	30·8
		Mussooree	6,705	23·661	+·116		23·782	17th	23·500	2nd	·282	45·2	54·6	+4·5	40·8	+3·1	47·7	+3·8	13·8	62·2	20th	35·0	10th	27·2
		Ranikhet	6,069	24·211	+·111		24·322	17th	24·060	2nd	·262	47·7	59·9	+4·3	44·2	+3·4	52·1	+3·9	15·7	66·1	20th	37·0	21st	29·1
		Muktesar		22·933			23·049	17th	22·774	2nd	·275	44·8	57·6		38·7		48·1		18·9	63·0	20th	32·0	8th	31·0
13	Bengal	Yatung	10,480?										43·1		23·5		33·3		19·6	54·1	25th	16·9	9th & 10th.	37·2
		Darjeeling	7,376	23·082	+·097		23·202	17th	22·875	2nd	·327	41·9	51·1	+3·2	36·9	+1·3	44·1	+2·3	14·2	60·1	25th	30·5	10th	29·6
		Gangtok	5,660	24·477			24·507	9th	24·447	20th	·060	47·0	58·7		24·4		41·6		34·3	69·2	25th	18·0	8th	51·2
	Central India	Mount Abu	3,945	26·196	+·086		26·273	4th	26·114	1st	·159	63·8	72·1	+3·3	56·8	+3·2	64·5	+3·3	15·3	79·2	25th	48·7	8th	30·5
		Pachmarhi	3,528	26·613	+·092		26·691	17th	26·504	1st	·187	63·0	77·8	+2·3	51·8	+0·3	64·8	+1·3	26·0	85·1	25th	39·3	10th	45·8
	South India	Wellington	6,200	24·360	+·059		24·417	24th	24·280	2nd	·137	56·4	71·4	+0·6	45·2	−1·9	58·3	−0·7	26·2	74·7	22nd& 28th,	37·2	2nd	37·5
		Kodaikanal	7,088	22·923			22·968	17th	22·851	1st	·117	54·8	64·8		46·9		53·8		17·9	71·1	3rd	43·5	10th	27·6
		Ootacamund		23·153			23·194	24th	23·079	1st	·115	56·9	67·1		44·2		55·6		22·9	72·5	23rd	38·2	1st	34·3
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	30·065	+·091	30·003	30·123	17th	29·988	27th	·135	78·8	84·4	−0·6	74·8	−0·3	79·6	−0·5	9·6	86·0	24th	70·5	1st & 6th	15·5
		Colombo	40	30·014	+·066	29·980	30·077	17th	29·924	27th	·153	78·1	87·5	+1·2	72·6	−0·3	81·1	+0·5	16·9	92·5	24th	70·0	17th & 19th.	22·5
	Persia	Meshed	3,104									34·9			31·0	+2·5						12·6	1st	
		Teheran		{ 26·148* / 24·934††			26·350	4th	25·940	21st	·410	} 40·7	53·7	+1·7	33·7	+0·9	43·7	+1·3	20·0	64·5	20th	20·0	2nd	44·5
		Ispahan		24·415*			25·200	17th & 18th.	24·750	21st	·450	37·7	57·8	+3·6	31·4	+2·3	44·6	+3·0	26·4	65·5	20th	19·1	5th	46·4
		Bushire	14	30·174	+·098	30·147	30·405	4th & 5th.	29·939	27th	·466	59·8	69·1	+3·4	55·0	+2·2	62·1	+2·8	14·1	82·6	26th	44·8	1st	37·8
		Bahrein	30	30·180†			30·451	5th	29·988	26th	·570	65·3‡	71·4‡		60·1‡		65·8‡		11·3	83·2	27th	54·9	7th & 8th.	28·3
		Jask		30·148	+·096		30·315	5th	29·988	27th	·327	67·4	76·7	+1·8	62·4	+0·6	69·6	+1·2	14·3	86·8	12th	58·3	1st& 8th.	28·5
		Muscat	20	30·143	+·087	30·111	30·336	5th	29·971	28th	·365	70·9	73·7	+0·9	68·8	+1·1	71·3	+1·0	4·9	77·0	28th	66·9	3rd & 9th.	10·1
	Arabia	Baghdad§	220	30·072		30·283	30·293	5th	29·740	25th	·553	52·0	73·7	+9·4	47·6	+6·0	6.·6	+7·7	26·1	82·0	17th	33·7	3rd	48·3
		Bussrah		30·213			30·476	5th	29·561	25th	·515		69·5		51·6		60·6		17·9	78·7	27th	32·5	5th	46·2
		Aden	94	30·021	+·074	30·048	30·156	5th	29·905	27th & 28th	·251	75·8	80·0	−1·7	73·4	0	76·7	−0·9	6·6	82·5	18th& 19th,	68·9	9th	13·4
		Perim	201	29·872	+·083	30·010	30·022	6th	29·778	26th & 28th.	·244	76·9	83·3	−0·2	73·8	−0·4	78·6	−0·3	9·5	84·6	28th	72·7	1st	11·9
	Afghanistan	Kabul										34·1	59·6	+11·3	27·5	+4·5	43·6	+7·9	32·1	69·2	10th	18·8	7th	50·4
	Central Asia	Kashgar	4,255	25·845			26·140	1st	25·470	25th	·670	20·6	44·7	−0·2	17·2	−5·1	31·0	−2·7	27·5	63·0	23rd& 24th.	−4·2	5th	67·2
	Arabian Sea Islands.	Amini Devi	13	30·060	+·077	30·001	30·115	18th	29·999	27th	·116	83·3	87·7	+2·5	75·8	−0·3	81·8	+1·1	11·9	90·0	12th	71·2	4th	18·8
		Minicoy	7	30·043		29·975	30·105	18th	29·990	5th	·115	79·6	86·1	−0·3						87·5	26th			
	Africa	Zanzibar	73	29·977	+·068	29·977	30·068	6th	29·901	10th	·167	80·8	85·9	−1·1	78·3	−1·5	82·4	−1·3	7·1	88·0	10th	75·8	23rd	12·2
		Do. Dunga		29·903 ‡‡			30·002	6th	29·850	3rd	·152	80·6	93·3		71·4		82·4		21·9	97·8	28th	65·3	22nd	32·5

* Aneroid uncorrected.

†† Mountain barometer, uncorrected.

‡‡ Mean of 22 days.

† Mean of 26 days.

‡ ,, ,, 25 ,,

§ Observations of 24 days.

Nots.—When a query is inserted against any reading or in the variation returns for any

I—*concluded.*

in India, Burma, etc., in February 1902—concluded.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected.)	Mean velocity corrected (where possible.)	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec. 1901 to 28th February 1902.	Normal rainfall for period, 1st Dec. to 28th February.	Variation from normal of period, 1st Dec. to 28th February.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
19	1		2	3	2	1			S 43° W	5·9	7·3	8·2	− 11	45	·141	3·1	1	2·70	−1·70	0·16	3·84	− 3·68	0·16	8·65	− 8·49	0·12	Murree.	Punjab—(*concld.*)	30
21			4	3					S 72° E							2·9	2			0·94	3·93	− 2·99	1·74	8·18	− 6·44	0·79	Poo.		
5	9	1	3	7	3				N 78° E	5·9		2·5	+136	37	·103	3·2	2	4·00	−2·00	0·79	3·00	− 2·21	1·98	6·94	− 4·96	0·58	Simla.		
5	16	4						3	N 2° E	9·0				45	·123	2·4	1	5·60	−4·60	1·40	4·20	− 2·80	2·82	9·09	− 6·27	1·36	Chakrata .	United Provinces.	25
11			3	2	1		11		S 70° W					46	·143	2·4	2	4·10	−2·10	0·63	4·57	− 3·94	2·81	9·30	− 6·49	0·36	Mussooree.		
15	2		4	3	1	3			N 76° E	2·8	3·2	2·0	+ 60	47	·158	1·6	1	4·50	−3·50	0·73	2·16	− 1·43	1·87	5·66	− 3·79	0·73	Ranikhet.		
1	1	2	2	6	1	1	1	13	N 27° W	5·7	5·2			42	·125	1·6	1			0·49			1·66			0·49	Muktesar.		
																	3	2·17	+0·83	0·90	0·62	+ 0·28	1·18	1·69	− 0·51	0·60	Yatung .	Bengal.	13
11	1		5	5	1	4	1		S 40° E	3·8	3·5	5·1	−31	81	·217	2·7‖	0	2·52	−2·52	0·03	1·01	− 0·98	0·16	1·95	− 1·79	0·03	Darjeeling.		
25			2		1				S 63° E	2·1	2·5			77	·251	3·9	5			1·69	2·29	− 0·60	4·31	3·52	+ 0·79	0·39	Gangtok.		
7	4	9				3	3	2	N 1° W	5·1	5·2	5·6	− 7	25	·147	1·6	0	0·50	−0·50	0	0·29	− 0·29	0	0·83	− 0·83	0	Mount Abu	Central India.	
17			1	1	1	5	2	1	S 45° W	5·0	5·2	3·8	+37	42	·250	3·0	0	1·00	−1·00	0·06	0·47	− 0·41	0·60	1·59	− 0·99	0·04	Pachmarhi.		
20		5	2			1			N 59° E	2·3		2·7	−15	59	·261	2·5	0	1·90	−1·90	0·08	1·52	− 1·44	7·00	6·26	+ 0·74	0·04	Wellington.	South India.	
1	2	10	6	7				2	N 71° E	1·3				48	·190	2·6	3	2·30	+0·70	1·66	1·48	+ 0·18	14·72	8·22	+ 6·50	0·74	Kodaikanal.		
														46	·207	2·1	1	1·20	−0·20	0·12	0·38	− 0·26	3·39	2·38	+ 1·01	0·11	Ootacamund		
																											XIII.—Extra India.		
11		17							N 45° E	1·2				84	·831	2·2	8			3·45	1·98	+ 1·47	24·20	23·26	+ 0·94	1·66	Trincomalee	Ceylon.	
3	7	14	4						N 39° E	6·6		6·2	+ 6	80	784	0·9	4			4·57	2·29	+ 2·28	3·22	12·28	− 4·06	2·90	Colombo.		
														75	·166	5·8	2			1·30	1·03	+ 0·27	3·47	2·14	+ 1·33	1·00	Meshed .	Persia.	
	5	21		1		1			N 40° E	2·7	3·5			60	·157	3·2	2			0·75	0·82	− 0·07	3·30	3·48	− 0·18	0·43	Teheran.		
26							2		W	2·0	2·7			70	·161	2·2	1			0·14	0·17	− 0·03	1·34	0·97	+ 0·37	0·11	Ispahan.		
3	6	11	2	2			1	3	N 29° E	6·1	7·3			71	·370	3·0	0			0·04	2·35	− 2·31	2·57	8·71	− 6·14	0·04	Bushire.		
1	4	2		4	2	1	4	7	N 45° W	?				90‡	·566‡	0·8‡	0			0·01			0·59			0·01	Bahrein.		
2	9	6	9					2	N 39° E	9·4	10·9			85	·574	1·3	2			0·62	0·97	− 0·35	0·67	2·62	− 1·95	0·43	Jask.		
				8		12		8	S 45° W	3·6	3·8			68	·513	0·8	1			0·28	0·78	− 0·50	0·80	2·32	− 1·52	0·20	Muscat.		
8	7	2	1	1	3			2	N 18° E	2·4¶	3·2¶			64	·260	2·9	2			0·38	2·17	− 1·79	0·77	5·19	− 4·42	0·25	Baghdad .	Arabia.	
																	2			0·42			2·50			0·20	Bussrah.		
2		12	9	1					N 67° E	20·0	19·6	12·9	+ 52	72	·634	4·3	0			0·02	0·29	− 0·27	0·41	0·98	− 0·57	0·02	Aden.		
		2	11	15					S 69° E	27·3	24·6			85	·787	2·7	0			0·03	0·26	− 0·23	1·48	0·68	+ 0·80	0·02	Perim.		
		2	10	5	5	6			S 45° E					67 **	·133 **	4·7	1			0·57	0·98	− 0·41	0·72	2·51	− 1·79	0·41	Kabul .	Afghanistan.	
26			1			1			S 20° E	1·0	0·9			68	·119 **	1·4	0			0	0·12	− 0·12	0·03	0·58	− 0·55	0	Kashgar .	Central Asia	
	14	12	1					1	N 21° E					70	·803	4·4	1			0·71	0	+ 0·71	1·90	0·51	+ 1·39	0·71	Amini Devi	Arabian Sea Islands.	
	6	17	3	2					N 43° E	4·0	4·3			81	·8 9	4 6	2			0·38	0·35	+ 0·03	4 88	7·10	− 2·22	0·17	Minicoy.		
	9	11	3	1	2	1	1		N 38° E	8·3 ††	7 8 ††			82	·862	7·0 ††	5			3·83	1·38	+ 2·45	8·21	7·52	+ 0·69	1·88	Zanzibar .	Africa.	
4		21		1					N 49° E	8·9	8·6			78	·824	6·2	6			8·20			14·24			2·07	Do. Dunga.		

station, the data for that station are not utilized in calculating the provincial variations.

¶ Mean of 23 days. ‖ Mean of 26 days. ** Mean of 14 days.

TABLE II —Abstract of Observations recorded at 10 A.M. and 4 P.M. at 65 Stations in India, Burma, etc, in February 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 65

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Bay Islands.	Port Blair	61	30·029	29·918	·111	29·969	+·082	29·960	87·4	75·9†	11·5	90·4	71·2	19·2	83·3	85·4	80·7†	+ 0·8	72·7	77·1	77·5	75·8
	Rangoon	41			Not recorded.				89·1	67·8	21·3	95·8	61·6	34·2	78·2‡	86·4‡	76·0‡	− 0·4	65·4	70·5‡	71·5‡	69·1
	Diamond Island	41	·064	·942	·122	·998	+·066	·975	87·2	74·8	12·4	91·2	72·8	18·4	81·7	82·0	79·2	+ 2·6	68·9	73·4	72·4	71·6
	Cocos Island	119	·025	·928	·097	·973	?	30·025	84·3	75·0	9·3	87·9	72·6	15·3	80·8	81·0	78·3	+ 1·6	69·8	72·3	73·0	72·0
	Akyab	20	·105	·986	·119	30·038	+·064	·001	85·1	60·7	24·4	93·5	54·1	39·4	75·2	80·6	72·3	0	?	66·6	68·9	?
Bengal and Orissa.	Chittagong	87	·044	·919	·125	29·975	+·072	·011	84·2	57·1	27·1	90·4	48·4	42·0	74·9	81·0	70·4	+ 0·3	56·2	66·2	66·5	63·0
	Calcutta (Aliporc)	21	·128	·992	·136	30·049	+·096	·016	84·6§	59·0§	25·6	?	?	?	75·5‖	83·9‖	71·2§	+ 1·2	55·9§	62·8‖	63·8‖	60·9
	Saugor Island	25	·116	·996	·120	·043	+·094	·013	82·4	65·4	17·0	89·5	51·3	38·2	76·2	79·8	72·8	+ 0·8	62·6	67·3	68·3	66·1
	False Point	21	·122	30·007	·115	·062	+·088	·025	83·2	63·1	20·1	86·4	54·0	32·4	79·7	80·5	72·0	− 0·1	62·4	69·8	70·5	67·6
Chhotanagpur Plateau and Central Provinces.	Hazaribagh	2,007	28·089	27·978	·111	28·030	+·091	·012	80·0	55·6	24·4	88·2	45·2	43·0	71·1	78·0	67·2	+ 1·6	47·3	55·1	58·5	53·6
	Darbhanga	166	29·961	29·816	·145	29·883	+·070	·007	82·0	51·8	30·2	89·3	43·8	45·5	72·0	81·1	66·6	+ 1·7	49·9	60·3	62·9	57·7
	Allahabad	309	·817	·689	·128	·744	+·067	·014	82·9	50·8	32·1	91·9	40·4	51·5	73·0	82·4	66·2	+ 0·9	47·6	58·9	62·0	56·2
Upper Sub-Himalayas.	Dehra Dun	2,233	27·837	27·748	·089	27·786	+·080	·025	76·0	48·3	27·7	83·8	38·1	45·7	64·5	72·9	60·8	+ 3·4	42·5	51·1	53·6	49·1
	Roorkee	887	29·205	29·096	·109	29·143	+·075	·022	80·1	44·5	35·6	89·2	34·6	54·6	66·5	77·6	61·1	+ 1·3	40·8	53·2	55·6	49·9
	Meerut	738	·356	·248	·108	·296	+·061	·022	81·1	47·4	33·7	90·1	39·2	50·9	67·0	78·6	63·1	+ 2·3	42·7	52·7	56·9	50·8
	Lahore	702	·411	·312	·099	·351	+·067	·046	80·6	45·3	35·3	87·9	35·8	52·1	65·7	79·4	62·0	+ 5·3	40·4	52·9	58·6	50·6
	Ludhiana	812	·295	·194	·101	·236	+·078	·045	78·0	48·1	29·9	86·5	39·5	47·0	64·3	76·2	62·0	+ 4·4	43·8	51·5	55·8	50·4
Indus Valley and N.-W. Rajputana.	Peshawar	1,110	·030	28·929	·110	28·965	+·059	·097	74·7	44·4	30·3	81·6	34·4	47·2	64·3	73·2	58·6	+ 6·1	38·0	51·1	54·7	47·9
	Jacobabad	186	·954	29·831	·123	29·882	+·061	·032	86·1	46·3	39·8	96·7	35·0	61·7	71·8	83·7	65·0	+ 3·2	40·5	54·7	60·4	51·8
	Kurrachee	30	30·128	30·019	·109	30·065	+·066	·047	85·9	57·4	28·5	92·5	48·5	44·0	75·1	81·2	70·5	+ 2·3	51·0	61·5	67·4	60·0
East Rajputana, Central India, and Gujarat.	Jaipur	1,431	28·680	28·573	·107	28·616	+·074	·028	84·0	53·3	30·7	92·9	40·5	52·4	74·2	82·3	68·2	+ 4·9	44·6	57·3	60·8	54·2
	Udaipur	1,925	·179	·055	·124	·117		·013	83·9	50·9	33·0	91·0	38·4	52·6	74·6	82·6	67·1		45·8	59·0	64·5	56·4
	Deesa	466	29·638	29·517	·121	29·568	+·062	29·990	92·0	56·3	35·7	101·2	48·3	52·9	80·7	90·3	73·8	+ 3·3	43·7	56·8	60·8	53·8
	Jamnagar	61	30·071	·937	·134	30·004		30·011	87·1	55·2	31·9	93·4	47·5	45·9	75·8	85·5	70·7		48·0	59·0	60·6	55·9
Deccan.	Belgaum	2,539	27·532	27·401	·131	27·462	+·062	29·892	88·6	60·8	27·8	93·2	55·0	38·2	80·5	87·2	73·8	+ 1·0	55·0	60·1	61·2	58·8
	Sholapur	1,590	28·493	28·347	·146	28·415	+·067	·937	93·3	64·0	29·3	98·0	55·8	42·2	82·1	91·4	78·9	+ 0·8	51·8	61·9	65·4	59·7
	Akola	930	29·174	29·023	·151	29·092	+·079	·974	93·3	59·1	34·2	99·4	47·9	51·5	81·6	92·1	75·6	+ 2·5	49·8	60·2	64·7	58·2
	Buldana	2,132	27·957	27·830	·127	27·887	+·073	·951	88·2	63·8	24·4	94·6	57·3	37·3	79·1	86·6	75·3	+ 2·1	49·5	56·7	59·5	55·2
	Khandwa	1,044	29·054	28·906	·148	28·974	+·077	·975	92·3	57·3	35·0	99·2	45·3	53·9	79·3	91·5	74·4	+ 3·1	47·5	61·3	66·2	58·3
	Nagpur	1,025	·084	·940	·144	29·006	+ 095	·990	91·1	59·7	31·4	98·3	50·8	47·5	77·7	89·3	74·7	+ 1·0	50·0	58·9	63·1	57·3
	Nagpur (Sanitary Commr.'s Office)	1,013	·102	·960	·142	·025		30·000	91·7	59·4	32·3	99·2	52·1	47·1	79·0	90·6	75·3		51·1	59·4	64·2	58·2
	Hyderabad (Deccan).	1,690	28·403	·280	·123	28·336	+·080	29·962	90·8	62·4	28·4	96·4	56·5	39·9	81·0	88·8	76·2	+ 0·1	?	65·6	67·3	?
West Coast.	Bombay	37	30·058	29·941	·117	29·991	+·066	·968	85·1	70·0	15·1	90·3	64·1	26·2	77·4	81·3	76·9	+ 1·8	63·8	68·7	72·1	68·2
	Karwar	44	·044	·916	·128	·971	+·067	·946	87·8	67·4	20·4	92·5	62·1	30·4	80·1	85·8	77·4	+ 0·9	65·2	70·1	73·5	69·6

† Mean of 26 days. ‡ Mean of 25 days. § Mean of 18 days.

II.

Stations in India, Burma, etc., in February, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from										Wind steadiness.		Wind velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%	↓					
.779†	.856	.840	.825	+.015	87†	75	69	77	+1	4·3	4·0	4·2	+1·4	1	5	20	9	14	2		2	3	N. 72° E.	N. 45° E.	53	74	109	121	6·29	5·16	Port Blair	Burma Coast and Bay Islands.
.598	.644‡	.574‡	.605	+.031	88	67‡	46‡	67	+4	2·7	4·1	3·4	+1·5																0	0	Rangoon	
.622	.715	.670	.669	−.009	72	66	61	66	−6	1·7	2·2	2·0	−0·2	3	13	7	4	3		2	5	19	N. 18° W.	N. 32° W.	52	85	138*	195	0·27	0·27	Diamond Island.	
.664	.723	.711	.699	+.025	76	69	67	71	+1	3·3	2·5	2·9	+0·9		20	8	9	1	1			17	N. 5° E.	N. 9° E.	64	89	108	377	0·32	0·20	Cocos Island.	
P	.543	.558	P	P	P	62	53	P	P	0·9	1·1	1·0	−0·1			8	20				20	8	N	N. 25° W.	20	47	65*	85	0	0	Akyab	
.446	.533	.465	.481	−.028	94	61	43	66	−4	1·3	2·3	1·8	−0·1		2	17	5	3	1	6	9	13	N. 12° W.	N. 43° W.	28	29	85*	93	0	0	Chittagong	Bengal and Orissa.
.417§	.421‖	.332§	.390	−.078	81§	46‖	28‖	52	−13	1·9	1·5	1·7	−0·2		10	2	2	2	5	11	8	16	N. 69° W.	S. 89° W.	43	25	88	80	0·02	0·02	Calcutta (Alipore).	
.541	.565	.553	.553	−.060	84	61	54	66	−9	2·7	2·4	2·6	+0·4		11	4	1		14	13	6	7	S. 75° W.	S. 52° W.	30	18	195	206	0	0	Sangor Island.	
.564	.604	.619	.596	−.032	96	59	59	71	−7	3·2	2·9	3·1	+0·4	1	8	2	7	10	14	4	9	1	S. 12° E.	S. 12° E.	25	17	155*	191	0	0	False Point	
.234	.247	.258	.246	−.007	50	31	26	36	−6	2·5	2·6	2·6	+0·3	6	10	1	3	1	4	5	11	15	N. 57° W.	N. 62° W.	43	55	135*	172	0·48	0·48	Hazaribagh	Gangetic Plain and Chota Nagpur.
.342	.375	.338	.352	−.030	87	47	31	55	−8	0·8	0·4	0·6	−1·0	21	1		3	2	1	6	13	9	N. 88° W.	S. 78° W.	34	47	46	90	0	0	Darbhanga	
.301	.321	.291	.304	−.026	78	39	26	48	−8	1·5	2·6	2·1	−0·1		7	3	4	5	6	2	17	12	N. 69° W.	N. 63° W.	33	34	103*	100	0·11	0·07	Allahabad	
.204	.215	.177	.199	−.084	60	35	22	39	−23	2·3	1·6	2·0	−2·3	14	2		1		5	13	13	6	S. 73° W.	S. 88° W.	49	28	31¶	43	0·33	0·21	Dehra Dun	Upper Sub-Himalayas.
.213	.237	.159	.203	−.088	71	36	16	41	−20	1·1	1·1	1·1	−2·3	19	2			6	3	3	3	20	N. 66° W.	N. 61° W.	28	31	61	68	0	0	Roorkee	
.222	.218	.185	.208	−.086	66	32	18	39	−19	0·7	1·0	0·9	−2·0	17		1		4		2	31	1	S. 85° W.	N. 59° W.	53	50	36*	61	0	0	Meerut	
.195	.239	.220	.218	−.064	62	37	22	40	−18	1·8	1·4	1·6	−2·1	8	6		5	2	3	2	14	16	N. 60° W.	N. 31° W.	41	31	47	54	0·03	0·03	Lahore	
.234	.218	.185	.211	−.092	69	35	20	41	−23	1·4	1·7	1·6	−2·7	7	1	5	1	4		1	19	18	N. 62° W.	N. 50° W.	52	40	56*	44	0·02	0·01	Ludhiana	
.159	.219	.208	.195	−.038	53	36	25	38	−20	3·5	3·7	3·6	−0·8	25	4	7	4	2	3		5	6	N. 7° E.	N. 9° W.	16	9	49*	82	0·12	0·10	Peshawar	Indus Valley and N.-W. Rajputana.
.180	.207	.221	.203	−.028	57	26	19	34	−8	1·2	1·8	1·5	−1·9	19	7	4	2	5	2	6	3	8	N. 39° W.	N. 21° E.	13	24	56*	71	0	0	Jacobabad	
.304	.382	.493	.393	−.016	61	44	47	51	−7	0·6	1·6	1·1	−1·7	3	1	12	8	1	1	15	14	1	S. 75° W.	N. 69° W.	15	20	150*	249	0·01	0·01	Kurrachee	
.193	.267	.274	.246	−.010	46	30	24	33	−10	1·7	1·8	1·8	−1·2		2	11	7	9	3	2	19	12	N. 9° E.	N. 18° W.	14	34	80	93	0	0	Jaipur	East Rajputana, Central India, and Gujarat.
252	313	.390	.318		68	36	35	46		1·8	1·6	1·7		29	2	5	5	4	2	4	4	1	S. 70° E.		7		38*		0	0	Udaipur	
.126	.139	.144	.140	−.089	27	14	10	17	−13	0·9	0·7	0·8	−1·6		9	18	5	1	1	6	11	5	N. 1° W.	N. 2° W.	34	30	170	211	0	0	Deesa	
.219	.287	.203	.246		55	32	17	34		0·9	0·8	0·9			27	11	3			2	6	7	N. 2° W.		68		243*		0	0	Jamnagar	
.366	.269	.221	.285	−.043	69	26	17	37	− 2	2·0	3·1	2·6	+1·4		4	7	14	21	3	5	1	1	S. 68° E.	S. 62° E.	55	14	21 ¶	237	0	0	Belgaum	Deccan.
.241	.305	.302	.283	−.037	40	28	20	29	− 6	2·1	3·1	2·6	+1·1		4	7	4	33	2	3		3	S. 60° E.	S. 43° E.	58	24	267*	174	0	0	Sholapur	
.242	.244	.247	.245	−.047	47	22	16	28	− 9	2·1	2·5	2·3	+0·8	5	4	3	8	11	7	3	3	12	S. 62° E.	N. 14° W.	9	23	102*	98	0	0	Akola	
.183	.187	.176	.182	−.095	30	18	14	21	−13	1·8	2·4	2·1	+0·3	1	6	3	5	6	13	6	4	11	S. 35° W.	N. 17° W.	14	27	165*	147	0	0	Buldana	
.217	.322	.324	.288	−.019	45	32	22	33	− 7	2·3	2·8	2·6	+1·2	1	4	6	10	5	7	9	9	5	S. 13° W.	N. 14° W.	9	31	124	93	0·01	0·01	Khandwa	
.250	.272	.253	.258	−.079	47	28	18	31	−11	2·2	3·0	2·6	+0·7	1	5	8	11	3	11	10	2	5	S. 46° E.	N. 42° E.	16	22	96	123	0	0	Nagpur	
.232	278	.277	.279		54	26	19	33		1·8	2·7	2·3		6		16		18		4		12	N. 71° E.		23		33*		0	0	Do. (Sanitary Commr.'s Office).	
P	.445	.403	P	P	P	42	30	P	P	1·5	2·7	2·1	+0·8	19		6	8	16	3	4			S. 59° E.	S. 50° E.	43	29	89*	97	0	0	Hyderabad (Deccan)	
.511	.593	.674	.593	−.008	69	62	63	65	− 3	2·3	2·6	2·5	+1·3		5	10	9	1			6	25	N. 13° W.	N. 3° W.	53	58	213	254	0	0	Bombay	West Coast.
.598	.607	.661	.622	−.027	89	59	54	67	− 5	0·9	1·3	1·1	+0·6	5	8	8	2			1	25	7	N. 52° W.	N. 53° W.	52	69	112	86	0	0	Karwar	

† Mean of 19 days. ¶ Mean of 27 days. * Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 65

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L., and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	29·140	28·992	·148	29·071			90·5	62·7	27·8	95·5	57·5	38·0	80·6	88·5	76·3		59·8	68·9	70·3	66·1
	Salem	940	·171	29·025	·146	·102	+·066	29·978	91·9	65·1	26·8	97·7	59·1	38·6	81·5	89·2	76·9	−0·7	63·4	72·1	75·6	70·5
	Chitaldroog	2,405	27·679	27·552	·127	27·611	+·062	·815	89·5	65·3	24·2	93·8	60·0	33·8	80·8	87·7	77·0	0	56·4	64·6	65·6	62·2
	Bangalore	3,021	·100	26·982	·118	·040	+·065	·942	85·4	59·2	26·2	90·2	54·6	35·6	75·9	83·2	71·8	−0·1	55·1	60·2	61·2	58·8
	Hassan	3,091	·028	·907	·121	26·967	+·059	·926	84·8	56·2	28·6	88·9	50·2	38·7	76·9	81·0	70·3	−0·7	53·3	60·9	60·3	58·2
	Mysore	2,518	·584	27·444	·140	27·514	+·057	·934	88·0	61·9	26·1	92·1	56·6	36·5	77·7	85·9	74·5	−0·3	57·5	63·3	62·7	61·2
	Madras	22	30·110	29·993	·119	30·045	+·080	·999	86·4	67·4	19·0	90·2	62·2	28·0	82·0	82·9	76·2	−0·9		72·8	73·0	71·3
	Bellary	1,475	28·623	28·475	·148	28·544	+·077	·953	94·1	64·5	29·6	100·0	59·2	40·8	82·6	91·1	79·3	−0·4	57·0	68·3	70·3	65·2
	Waltair	226	29·913	29·793	·120	29·853		30·023	83·8	70·0	13·8	89·1	65·9	23·2	81·0	80·5	76·1		62·8	70·1	71·1	68·0
Hill Stations, Baluchistan.	Quetta	5,502	24·803	24·711	·092	24·750	+·108		62·3	29·9	32·4	73·5	16·6	56·9	51·7	59·8	45·5	+4·4	27·7	39·7	44·4	37·3
Hill Stations, Northern India.	Leh	11,503	19·777	19·678	·099	19·734	+·142		39·4	14·8	24·6	49·6	5·0	44·6	28·4	36·4	27·7	+6·3	12·7	19·2	24·1	18·7
	Srinagar	5,204	25·084	24·982	·102	25·026	+·091		57·7	27·6	30·1	64·0	17·0	47·0	40·2	55·9	42·2	+9·0	26·3	37·7	52·9	39·0
	Kailang	10,087	21·058	20·964	·094	21·017	?		39·6	17·7	21·9	46·2	8·0	38·2	29·5	35·2	26·2	+5·8	16·8	23·7‖	27·9‖	22·8
	Simla (Ridge)	7,224	23·241	23·181	·060	23·204	+·127		52·5	40·4	12·1	58·7	33·1	25·6	46·7	49·4	45·1	+4·1	32·6	36·0	38·7	35·8
	Chakrata	7,022	·407	·347	·060	·370	+·106		57·9	40·1	17·8	64·7	33·9	30·8	49·8	51·9	46·9	+4·6	33·1	40·0	40·2	37·8
	Ranikhet	6,069	24·240	24·162	·078	24·189	+·102		60·2	44·2	16·0	66·0	36·8	29·2	54·3	57·3	50·9	+3·8	37·5	43·6	43·8	41·6
	Muktesar		22·967	22·899	·068	22·933			57·9	38·7	19·2	63·0	32·0	31·0	50·9	53·2	47·1		32·1	40·0	41·5	37·9
	Katmandu	4,388	25·730	25·614	·116	25·667	?		71·8	38·4	33·4	78·3	32·8	45·5	59·6	67·3	54·0	+1·3	37·0	49·8	51·9	46·2
	Darjeeling	7,376	23·088	23·022	·066	23·050	+·082		51·3	36·9	14·4	60·1	30·5	29·6	44·7	48·4	43·4	+2·7	35·3	41·3	44·0	40·2
Hill Stations, Central India.	Mount Abu	3,945	26·222	26·140	·082	26·172	+·068		72·7	56·8	15·9	80·2	48·7	31·5	68·3	70·6	64·2	+3·9	43·9	49·6	51·4	48·3
	Pachmarhi	3,528	·641	·542	·099	·586	+·084		78·2	51·8	26·4	85·1	39·5	45·6	71·8	76·9	64·5	+2·1	44·8	53·5	55·7	51·3
	Chikalda	3,642	480	·369	·111	·418	+·030		80·5	60·8	19·7	86·2	55·3	30·9	72·3	78·6	70·0	+2·3	48·8	53·5	56·6	53·0
Hill Stations, S. India.	Wellington	6,200	24·376	24·300	·076	24·338	+·058		71·5	45·3	26·2	74·8	37·2	37·6	67·0	67·1	57·3	−0·6	42·4	52·8	55·5	50·2
	Kodaikanal	7,688	22·941	22·870	·071	22·901			65·0	46·9	18·1	71·1	43·5	27·6	60·2	58·7	54·0		39·3	48·2	51·3	46·0
	Ootacamund		23·172	23·099	·073	23·136			67·2	44·2	23·0	72·7	38·3	34·4	63·2	62·8	54·6		39·5	49·4	51·4	46·8
Extra India.	Aden	94	30·040	29·932	·108	29·978	+·073	·005	80·2	73·3	6·9	82·5	68·9	13·6	77·6	79·4	76·8	−0·1	67·4	70·2	68·8	68·8
	Perim	201	29·882	·768	·114	·817	+·076	29·953	83·4	73·8	9·6	84·7	72·7	12·0	79·8	80·6	77·9	−0·3	71·4	75·0	75·2	73·9
	Minicoy	7	30·070	·961	·109	30·011		·943	86·2			87·7			84·0	84·6				76·2	76·5	
	Zanzibar	73	29·971‖	·854	·117	29·913	+·068	·910‖	86·0	78·8	7·2	88·0	75·8	12·2	82·2‖	85·4	82·3	−1·1	73·5	77·4‖	77·3	76·1
	Port Victoria (Seychelles.)	15	30·029	·935	·094	·982	+·053	·921	83·4	74·6	8·8	86·2	71·0	15·2	81·8	82·7	78·8	−1·4	73·5	76·3	76·6	75·5
	Mauritius (Pamplemouses.)	181				·711	−·043	·837				93·2	65·1	28·1			78·8	+0·3				

§ Mean of 26 days. ‖ Mean of 27 days. ¶ Mean of 26½ days.

II—*concluded.*

Stations in India, Burma, etc., in February, 1902—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind direction.										Wind steadiness.		Wind velocity.		Rainfall.		Station.	Meteorological Province.
														Number of winds from																	
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·481	·554	·499	·508		84	53	37	56		3·5	4·0	3·8		6		1	14	19	3	4	1	2	S. 53° E.		52		66*		0·12	0·12	Periyakulam	South India.
·565	·680	·719	·655	+·092	91	63	52	69	+11	2·1	3·4	2·8	+0·8	9	1	6	39	1					N. 85° E.	E	78	51	113*	128	0·41	0·30	Salem. †	
·349	·413	·361	·374	+·042	56	39	27	41	+ 4	1·8	2·3	2·1	+0·6	2		9	28	13	1		1	2	S. 87° E.	N. 89° E.	73	48	159*	170	0	0	Chitaldroog.	
·393	·343	·290	·342	−·054	78	39	26	48	− 4	1·5	1·5	1·5	−0·4			14	29	10	2	1			N. 89° E.	S. 69° E.	80	65	210*	105	0	0	Bangalore.	
·380	·354	·255	·330	−·051	83	38	22	48	− 4	2·4	3·7	3·1	+0·3		1	21	23	9	2				N. 80° E.	S. 85° E.	80	67	63*	77	0	0	Hassan.	
·425	·409	·285	·373	−·047	76	43	23	47	− 4	4·2	3·6	3·9	+2·5		1	10	24	17	2	2			S. 80° E.	N. 87° E.	75	67	212*	201	0	0	Mysore.	
	·686	·682	·691	+·015		63	60	76	+ 2	3·1	2·6	2·9	+0·1		1	18	29	6	2				N. 81° E.	S. 85° E.	84	69	118	119	0·05	0·05	Madras.	
·375	·519	·489	·461	+·072	62	46	33	47	+ 7	2·2	3·0	2·6	+1·2		2	1	25	10	14			4	S. 63° E.	S. 57° E.	61	47	104*	92	0	0	Bellary.	
·484	·597	·640	·574		66	56	61	61		3·7	2·9	3·3				4	15	8	10	18	1		S. 21° E.		48		94		0	0	Waltair.	
·135	·129	·137	·134	−·032	81	33	27	47	−19	2·5	3·6	3·1	−1·1	24				3	3	6	7	13	S. 89° W.	N. 83° W.	32	31	53*	88	0·04	0·02	Quetta.	Hill Station, Baluchistan.
·065	·040	·054	·053	−·023	72	22	24	39	−29	3·5	5·0	4·3	−2·5				2	3	20	20	7	4	S. 30° W.	S	69	23	64	29	0·01	0·01	Leh.	
·136	·202	·374	237	+·081	87	79	83	83	+ 3	3·0	4·3	3·7	−3·1	13	10	8		6	5		4	10	N. 5° W.	S. 24° E.	25	13	86*	74	0·61	0·54	Srinagar.	
·090	·086	·101	·092	0	90	51	50	64	− 9	3·5	5·8	4·7	−1·8			1			8	26	17	4	S. 59° W.	S. 72° W.	78	66	13	27	0·56	0·53	Kailang.	
·109	·104	·128	·114	−·038	45	34	36	38	−20	3·1	3·4	3·3	−2·4	2	11	2	3	12	16		2	6	S. 41° E.	S. 20° E.	19	22	137	131	0·79	0·58	Simla (Ridge.)	Hill Stations, Northern India.
·121	·149	·132	·134	−·029	49	41	34	41	−22	2·5	2·7	2·6	−2·1	11	6	2	1	9	27				S. 19° E.	S. 20° W.	48	2	216	134	1·40	1·36	Chakrata.	
·158	·175	·150	·161	−·035	55	42	32	43	−19	1·5	1·5	1·5	−3·0	13	1	2	3		1	13	16	7	S. 84° W.	S. 51° W.	46	20	76*	57	0·73	0·73	Ranikhet.	
·118	·136	·143	·132		50	37	36	41		1·3	1·9	1·6		2	3	4		17	5	8	4	13	S. 28° W.		16		122*		0·49	0·49	Muktesar.	
·207	·251	·214	·224	−·025	87	49	32	56	−10	1·0	2·2	1·6	−1·9			2	8	10	1	3	26	6	S. 74° W.	N. 86° W.	28	18	16	29	0	0	Katmandu.	
·193	·228	·249	·223	+·012	87	76	72	78	− 2	4·3	6·2	5·3	−0·6	3		2	3	8	1	14	21	4	S. 63° W.	S. 79° W.	48	31	83*	137	0·03	0·03	Darjeeling.	
·142	·145	·163	·150	−·038	31	21	22	24	−12	1·6	1·2	1·4	−1·2		8	8	3		2	8	12	15	N. 50° W.	N. 63° W.	46	27	124*	140	0	0	Mount Abu.	Hill Stations, Central India.
·230	·205	·202	·212	−·035	56	26	22	35	−10	2·6	2·8	2·7	+0·6	9	4	8	3	5	2	10	8	7	N. 76° W.	N. 64° W.	14	25	123*	98	0·06	0·04	Pachmarhi.	
·213	·193	·207	·205	−·075	39	24	21	28	−13	2·1	2·1	2·1	+0·3	21	12	2		1	2	13	1	4	N. 68° W.	N. 83° W.	21	24	168*	148	0	0	Chikalda.	
·246	·255	·323	·275	−·015	80	40	49	56	− 3	1·8	2·8	2·3	−0·3	3	1	6	5	37	4				S. 55° E.	S. 39° E.	77	65	57	60	0·08	0·04	Wellington	Hill Stations, S. India.
·169	·225	·307	·234		53	46	63	56		2·2	4·2	3·2			1	14	8	19	1			3	S. 87° E.		52		327		1·66	0·74	Kodaikanal‡	
·197	·214	·263	·225		68	38	47	51		2·0	2·4	2·2																	0·12	0·11	Ootacamund.	
·593	·639	·563	·598	−·054	72	67	56	65	− 6	4·4	2·5	3·5	−0·4	1		17	19	11					N. 84° E.	N. 87° E.	77	73	471* ¶	356	0·02	0·02	Aden.	Extra India.
·738	·813	·806	·786	+·092	88	79	77	81	+ 9	1·7	0·8	1·3	−1·1			2	16	35	3				S. 58° E.	S. 64° E.	89	73	592*	430	0·03	0·02	Perim.	
	·800	·807				69	68			3·8	4·1	4·0			18	32	4	2					N. 36° E.		85		102*		0·38	0·17	Minicoy.	
·757	·879	·831	·822	−·032	77	80	68	75	0	6·4	4·5	5·5	+1·5		15	20	7	3	3	2	3	2	N. 36° E.	N. 34° E.	53	63	190*	159	3·83	1·88	Zanzibar.	
·813	·836	·839	·829	+·015	95	77	75	82	+ 4	5·8	6·0	5·9	−0·6	1	12	5	5	12			2	19	N. 4° E.	N. 27° W.	36	56	152	145	11·82	4·20	Port Victoria (Seychelles.)	
			·759	+·002				78	+ 1																		377	269	17·52	5·40	Mauritius (Pamplemousses.)	

† Wind variable 6.

‡ Wind variable 10.

* Corrected.

G. I. C. P. O—No. 156 Meteor.—23-4-'902.—385.

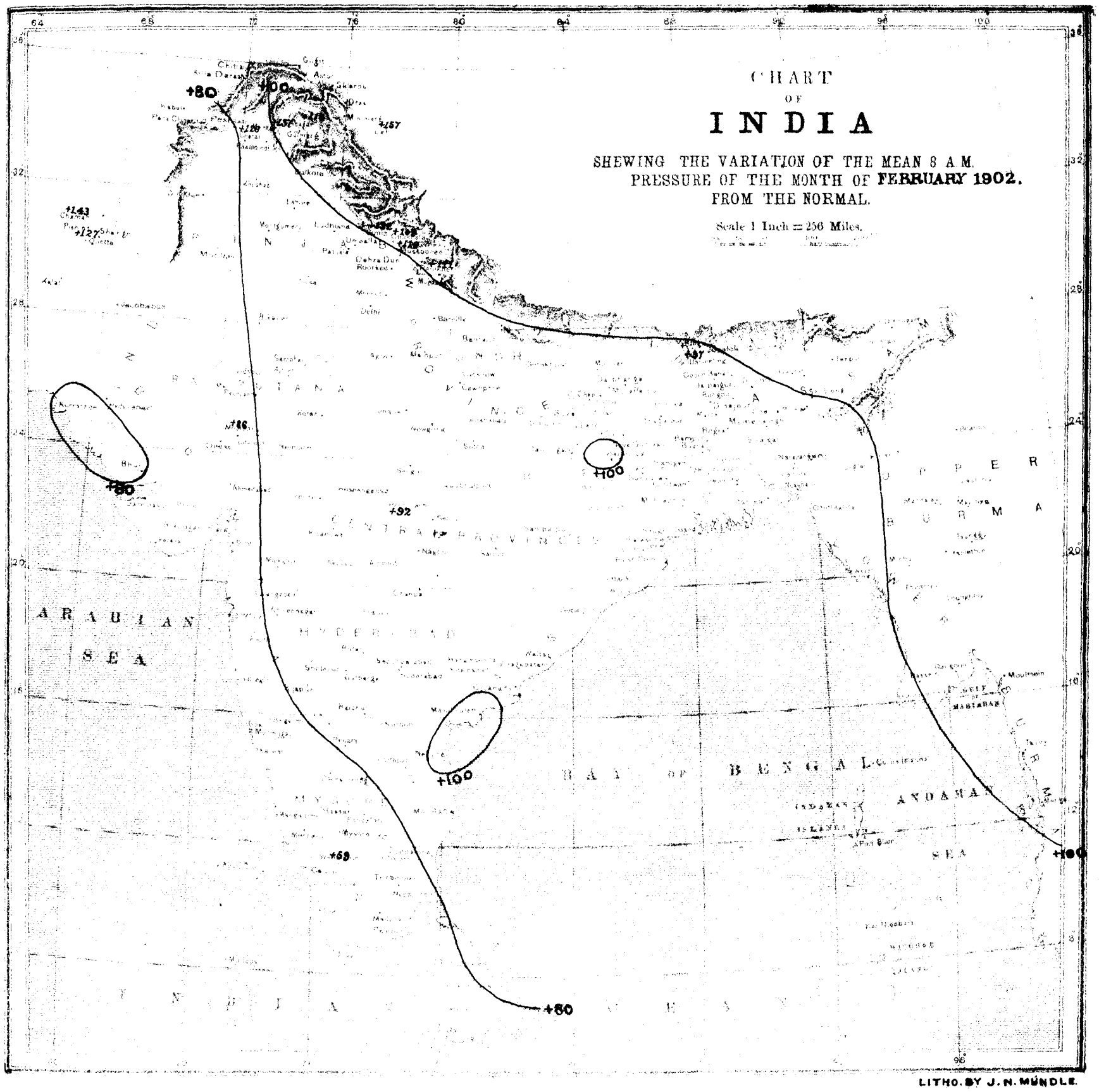
LITHO. BY J. N. MUNDLE.

Explanation.

The lines of the above Chart represent isobars or lines of equal barometric pressure, and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of ·05 inch. The isobars in the Bay of Bengal are filled in by means of the shore observations, and by comparison with the ordinary or normal distribution of pressure as given in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant Meteorological Reporter to the Government of India, and published by the Meteorological Department. Hence they have not the same validity as the isobars in the land area of India itself, but it is probable they deviate very little from the actual.

The mean 8 a.m. wind directions of the month are shewn by means of arrows flying with the wind, and are calculated by means of Lambert's formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0 to 2	miles per hour	...	one	feather	added	to the	wind	arrow
,, ,,	2 to 5	,, ,, ,,	...	two	feathers	,,	,,	,,	,,
,, ,,	5 to 10	,, ,, ,,	...	three	,,	,,	,,	,,	,,
,, ,,	10 to 20	,, ,, ,,	...	four	,,	,,	,,	,,	,,
	over 20	,, ,, ,,	...	five	,,	,,	,,	,,	,,



LITHO. BY J. N. MUNDLE.

Explanation

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other, one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

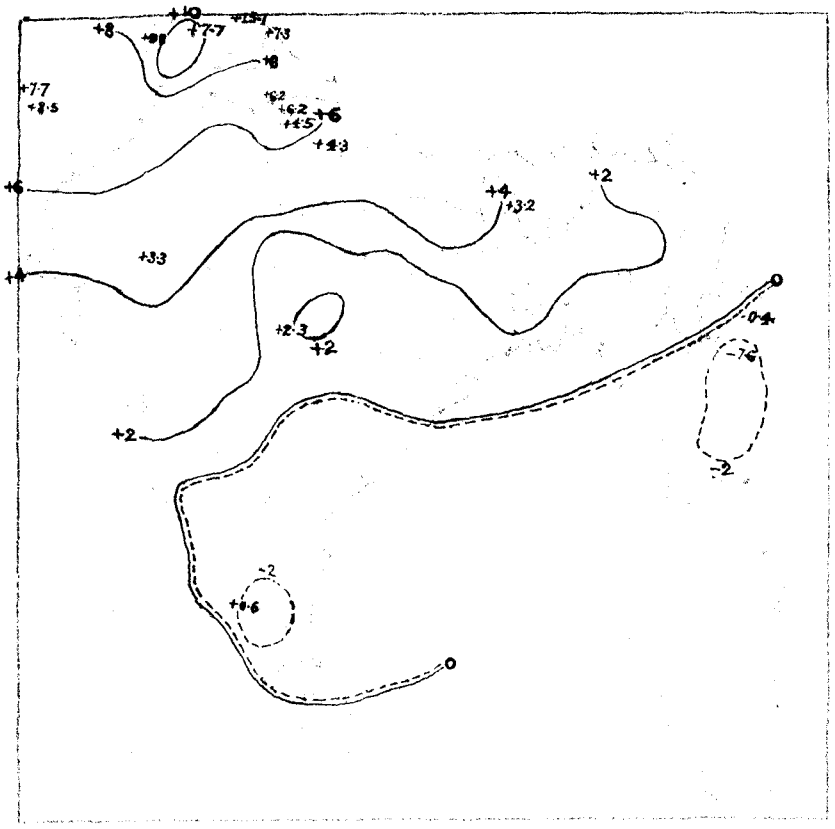
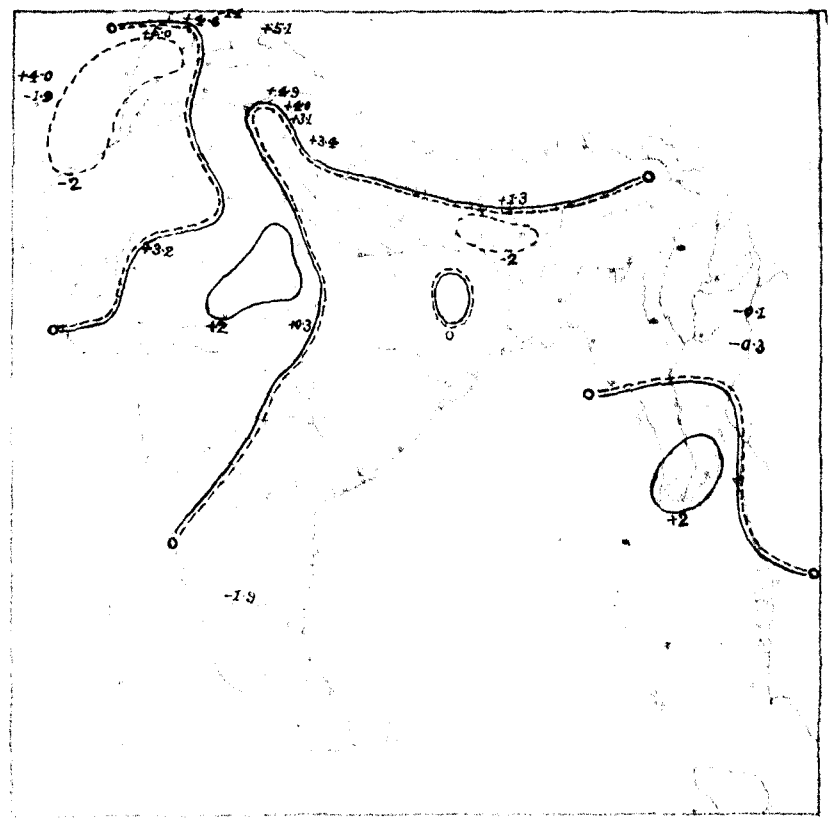


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous lines indicate that the mean maximum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

CHART SHEWING THE VARIATION OF THE MEAN DAILY TEMPERATURE OF THE MONTH FROM THE NORMAL.

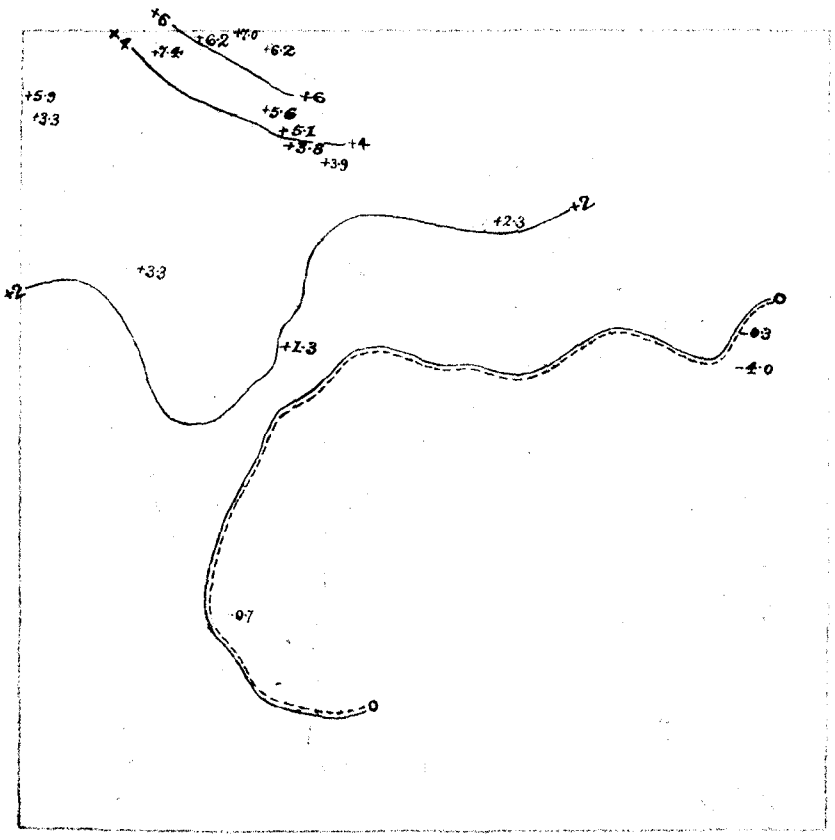
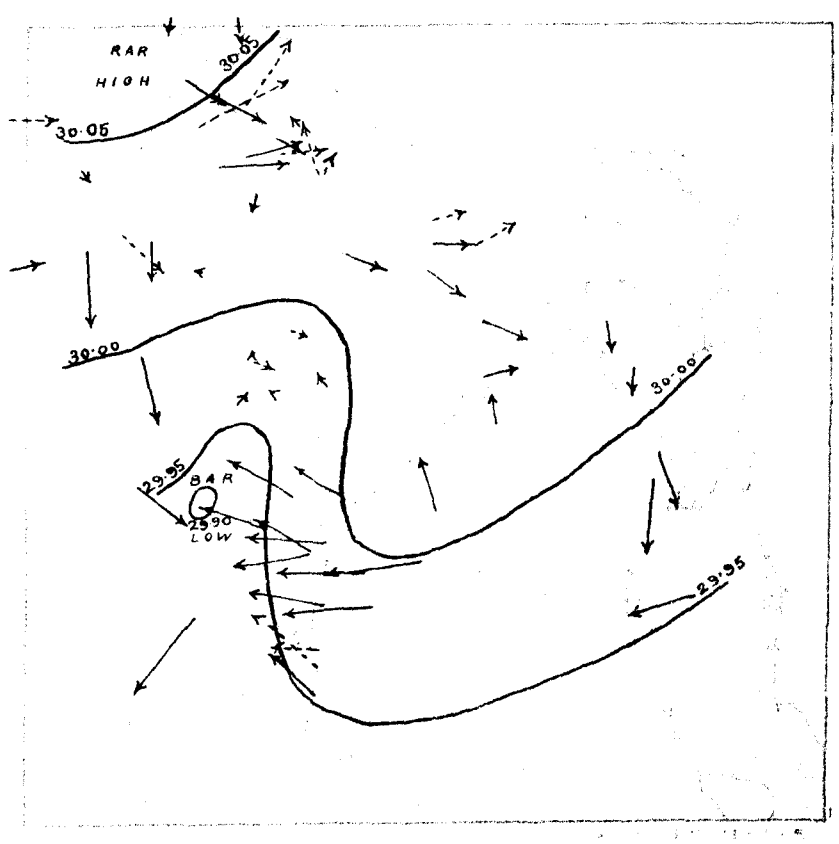
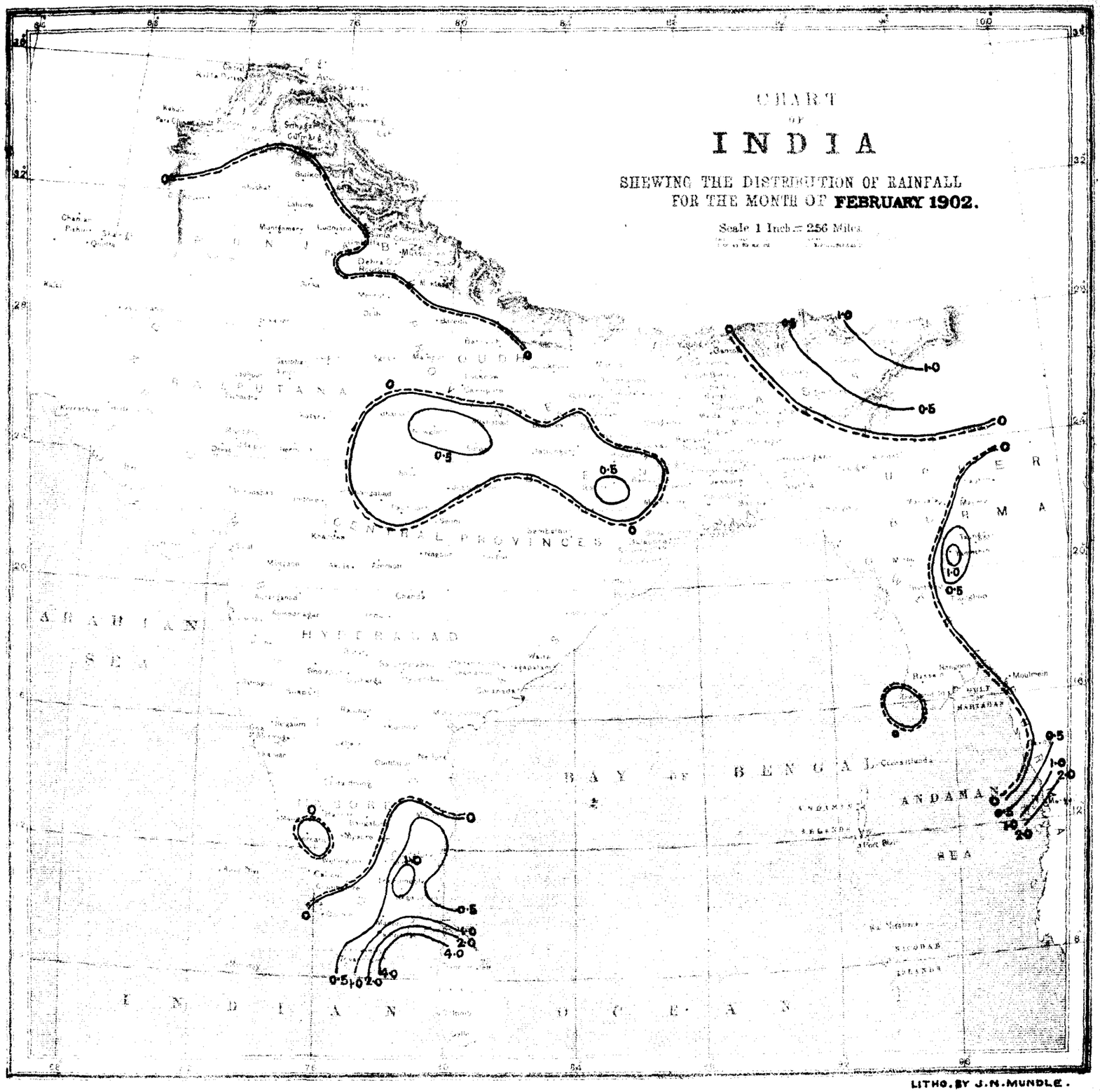


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF FEBRUARY 1902.



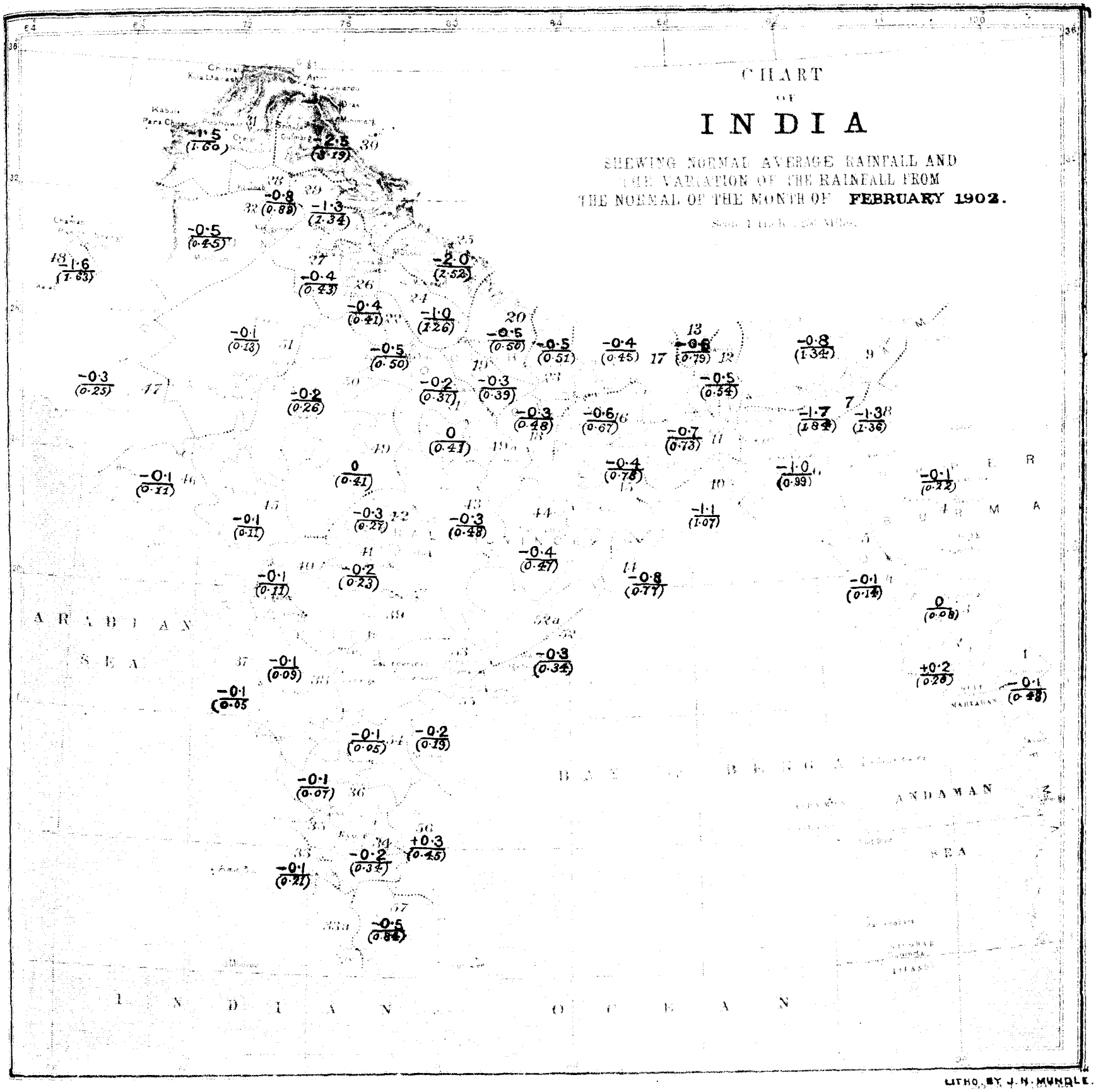
Explanation.

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{1}{8}$th of an inch being equal to 100 per cent.



Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India (182 in number), except those at the Hill Stations over 3,500 feet in Elevation. The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.



LITHO. BY J. N. MUNDLE.

Explanation.

The Chart gives the variations of the rainfall of the month (in tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable and useful means. The country is divided into 57 areas, over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means both actual and normal for the month, have been calculated, and the numbers given in the centre of each division (usually with a + or − sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The normal average rainfall is also given below in smaller figures enclosed within brackets so that the percentage variation can be at once estimated. The name of the district can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim
2. Lower Burma Deltaic
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. North Western Provinces, East
19. South Oudh
20. North do.
21. North Western Provinces, Central
22. Do. do., West
23. Do. do., East Submontane
24. Do. do., West do.
25. Do. do., Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
34. Travancore
35. Madras, South Central
36. Coorg
37. Mysore
38. Konkan
39. Bombay Deccan
40. Hyderabad, North
41. Khandesh
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
49a. Do. do.
50. Rajputana East, Central India West
51. West Rajputana
52. Madras, East Coast, North
52(a). Do. do. do. (a)
53. Hyderabad, South
54. Madras, East Coast, Central
55. Do. East Coast, South
57. Madras, South

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INTRODUCTION.

THIS review of the weather in India during the month of March 1902 is based on observations taken daily at 8 A.M. at 228 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 65 stations. In the rainfall summary the rainfall data of the meteorological observatories and the rainfall statements of the month published by the Provincial Governments that had been received up to the date of the preparation of the review, are utilized. A summary of the weather in the Bay of Bengal and the Arabian Sea, derived from information extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given.

Summary of the chief features of the weather in India during the month of March, 1902.

An unusually large number of depressions of the cold weather type passed eastwards over North India during the month under review.

The high pressures and strongly marked anti-cyclonic conditions which characterized February 1902, began to pass away about the 25th of that month, when, as was pointed out in the Review for February, pressure gave way rapidly in Persia and a disturbance was initiated which, passing eastwards into India, gave disturbed weather and some precipitation in North-West India and in Kashmir at the close of the month.

As this depression passed off, pressure rose in South-East Russia and in the Persian area, and anti-cyclonic conditions were again established in the north of the Persian area and in the Trans-Caspian region. On 1st March pressure was about ·88″ in excess at the centre of the Central Asian anticyclonic area which on this date lay to the north of the Caspian, or much further to the west than usual. Besides being displaced westwards, the anti-cyclone was much more strongly marked than usual, pressure at its centre being over half an inch above the normal value at the ordinary position of its centre, in the region lying between Lake Baikal and Lake Balkash.

The intensification of the anti-cyclone in the Trans-Caspian region on the 1st shewed as far east as the North-West Punjab where on that date a general rise occurred. At the same time, the disturbance, which was affecting North-West India at the close of the preceding month, moved eastwards and pressure fell in Further Kashmir. It is possible, also, that the fall on this date in North-East India, greatest in Upper Assam, was due to the same disturbance.

In consequence of the precipitation accompanying this storm in North-West India, temperature in the extreme north fell to about normal on the 1st, but remained in considerable excess over the remainder of the country, the excess ranging from 10° in Sind and Rajputana to about 7° in the Punjab and the United Provinces.

Meantime pressure had begun to fall rapidly in Persia and on the 2nd and 3rd a well-marked depression was advancing eastwards through Baluchistan, and although it did not enter India till the 4th or 5th, it began to affect the temperature in the frontier districts on the 3rd when

the mean temperature in Baluchistan was about 10° in excess of normal.

The crest of the warm wave preceding the depression passed Baluchistan on the 4th when excesses over normal of 15°·9 and 18°·9 were shewn in the mean maximum and mean minimum temperatures, respectively.

With the advance of the depression, the warm wave also advanced. The greatest excesses, about 10°, shewed at Khushab and Bikaner on the 5th when the disturbance lay over Rajputana and the Central Punjab; at Roorkee and Ajmer (excesses about 13°) on the 6th when the centre was passing over Bundelkhand. On the 7th three foci of excessive temperatures shewed in North India, one between Agra and Mainpuri, another over Dehra Dun and Roorkee, and the third over Ajmer, the excesses exceeding 13° at all three. On the 8th and 9th after the disturbance entered Bengal, temperature rose there and excesses of over 10° shewed at Hazaribagh and Ranchi, in the East Satpuras, on both these days.

Although the primary disturbance gave no rain throughout it gave rise to a feeble secondary disturbance on the 6th, which, before it filled upon the 7th, gave moderate rain or snow in the Punjab and Kashmir Himalayas.

Immediately in the rear of the disturbance just described, another disturbance advanced eastwards. It seems to have originated in the south of Baluchistan on the 5th, and developing next day, passed into Rajputana and the Central India Plateau on the 7th and into the south-eastern districts of the United Provinces on the 8th, reaching Central Bengal and coalescing with the previous disturbance on the 9th.

In Baluchistan, on the 6th and 7th, as the double disturbance passed off eastwards, the temperature fell rapidly, and on the 7th and 8th, temperature was normal or in slight defect in that area.

The cool wave subsequently advanced eastwards, but becoming less intense as it advanced, shewed only as a more or less marked reduction of temperature in the areas traversed, nowhere being sufficiently intense to reduce temperature to normal. The lowest temperatures occurred in Sind on the 7th (mean excess 3°·3), in the Punjab on the 9th (mean excess 4°·2), in Rajputana on the 10th (mean excess 3°·0), in the United Provinces on the 11th (mean excess, 2°·4), and in Bengal, Assam and Burma on the 12th (mean excesses, 2°·9, 0°·3 and 1°·5, respectively.)

On the 9th, another disturbance, which originated in Persia on the 7th, began to affect the west frontier districts. Temperature rose very rapidly at Quetta and Chaman as the pressure fell, the excesses on the 9th and 10th in Baluchistan being 7°·7 and 8°·4, respectively. On the 10th the depression was central near Dera Ismail Khan where pressure was one eighth of an inch in defect. By the 11th the depression was central over the South-East Punjab where also temperatures were about 12° above normal. By the 12th the depression had moved to near Allahabad, and on this day the most excessive temperatures were shewn in North Oudh (excess about 8°). Meantime the succeeding cool wave had reduced the temperature to nearly normal in Baluchistan and Sind on the 11th and 12th, respectively.

By the 13th, temperature had fallen rapidly in the Indo Gangetic Plain (east) and in the sub-montane districts of Bengal, where a series of thunderstorms gave light to moderately heavy rain over a large area, and by the 14th, the fall of temperature had passed eastwards into East Bengal and Burma, where the mean temperature of the day was about 4° below normal.

Meanwhile, another disturbance was advancing over North India. It probably originated in Persia on the 10th, but began to affect the South-West Punjab on the 12th, where on that date temperature was rising rapidly. By the 13th the mean excess in that area had risen to 12°·7. On the 14th the excess at Chaman was 18°·3. The depression began to move eastwards on the 15th and reached the United Provinces on the 16th and Bengal on the 17th. Its effect on the weather was very slight, and was shewn chiefly in excessive temperatures.

Temperatures fell to some extent in the rear of this disturbance but the effects of the cool wave were almost completely masked by the immediate advance of the warm wave preceding the next storm which was in some respects the most important storm of the month.

This storm seems from the rather scanty available data to have been the continuation of a deep depression which shewed over the Black Sea on the 12th and 13th, and which, after moving due east to the north of the Caspian on the 14th, probably moved in a south-easterly direction to the northern frontiers of Afghanistan on the 15th or 16th.

At Kabul, the wind which was easterly on the 12th and 13th, blew from south-east from the 14th to the 16th. On the 17th it veered suddenly round to the north-west, and on the 18th, as the skies cleared, it moved gradually back again to its normal easterly direction. At Kabul precipitation occurred on every day from the 14th to the 18th, both days inclusive. It was light on the 14th and became gradually heavier till the 17th, when the precipitation, measured as rain, amounted to ·45″. It was again light on the 18th.

The above data for Kabul make it probable (1) that the storm advanced from the north-west, (2) that its centre passed close to, or a little to the north-east of Kabul on the 17th.

This is confirmed to some extent by the data for Chitral, where also the lowest barometric readings and heaviest precipitation occurred on the 17th. Lowest readings occurred at Gilgit on the 18th, the fall of pressure during the preceding 24 hours being ·371″. This seems to indicate that the disturbance passed east from Afghanistan to Further Kashmir on the 18th.

Pressure first began to fall in Kashmir on the 15th, and fell very rapidly on the 16th, 17th and 18th. Although the fall in Kashmir continued on the 19th the wind had by then shifted round at most stations to westerly directions—an indication that the disturbance had passed off to the east—and on the 20th a rapid rise of pressure occurred.

Precipitation was practically continuous in Kashmir from the 16th to the 20th. It was heavy on the 16th, 18th and 19th. On the 21st, the skies began to clear and the precipitation ceased.

To trace the meteorological changes during this period in the Indian region: On the 18th pressure fell by almost ¼" at Peshawar and by amounts decreasing southwards and eastwards to zero on the West Coast, Ceylon and Lower Burma.

On that day pressure was about one-third of an inch below normal at Peshawar, and was lower there than anywhere else in India, instead of being highest there as it normally is in March.

On the 19th a brisk rise shewed over the Punjab and in Burma, but the fall continued, in the area lying east of a line joining Kathiawar with Simla, being especially brisk along the foot of the Kumaon hills and in the region denoted by Allahabad and Sutna, where the depression was now central.

By the morning of the 20th the depression had moved somewhat to the east and by the 21st shewed in Orissa having by this time more or less filled up.

While the disturbance was passing across the Afghan mountain districts on the 17th and 18th temperature rose considerably in North-West India, the greatest excesses (over 12°) being shewn in Rajputana on the 18th. By the 19th the area of greatest excess of temperature had moved eastwards to the east of the Central India Plateau and the neighbouring parts of the Gangetic Plain, while at the same time temperature had begun to fall rapidly in Baluchistan and the North-West Punjab, as the skies cleared and pressure rose in that region. On the 20th pressure rose rapidly in Upper India and was steady or falling slightly in North-East India where the depression now lay, so that west winds were established over the greater part of the Indo-Gangetic Plain and temperature fell rapidly over the whole of Upper India. The defect on the 20th exceeded 12° at Rawalpindi and Murree, although more or less excessive temperatures still shewed over Upper Sind and in the east of the Central Provinces. By the 21st the fall of temperature had spread eastwards to Assam where thunderstorms had given light to moderate rain.

A slight disturbance formed in Lower Sind on the 20th which advancing eastwards reached Bengal on the 23rd and gave rain in North-East Bengal on that day. Temperature fell rapidly in consequence and on the 23rd was below normal over the greater part of India lying east of a line joining Ludhiana and Sholapur.

Another storm, which probably originated in Persia on the 18th (although no definite depression can be traced over Baluchistan during the succeeding days) passed over North India from the 22nd to the 25th. It shewed over Sind and the South-West Punjab on the 22nd, and thereafter moved steadily eastwards reaching Bengal on the 25th. It was throughout a feeble disturbance, its chief effect being to cause a little cloud and a moderate rise of temperature in the regions in its track.

On the 25th the barometer again began to fall, and the temperature to rise in the South-West Punjab and in Sind—the first indications of the approach of another storm. This storm probably originated in Persia on the 22nd and thereafter passing eastwards by the Persian Gulf reached South Baluchistan on the 25th and Rajputana on the 26th, temperature meanwhile having risen rapidly to an excess of 8° or 9° above normal in that area. A secondary depression developed in the North Punjab on the 26th and gave a few light showers to stations on the North-West Frontier.

Meanwhile from the 24th to the 26th pressure had been rising steadily over India and by the latter date was in considerable to large excess over the whole country. The excess was greatest and about one-seventh of an inch along the line of the Himalayas and diminished southwards to Ceylon where it was ·025".

On the 27th pressure fell over the greater part of India north of Lat. 20°N; at the same time the disturbance which shewed in Rajputana on the 26th moved eastwards to the Central Indo-Gangetic Plain, the warm wave at the same time advancing with it.

By the 28th the disturbance had reached North-East India, its centre shewing in North-East Bengal, where pressure was now in moderate to considerable defect. At the same time pressure remained in considerable excess in the North-West Punjab, so that gradients were now steep for west winds down the Gangetic Plain. Temperature fell rapidly in the Punjab on the 28th, and was below normal on that and the following day over the greater part of North India, the greatest defect on the 29th being about 5° in the Central Punjab.

On the 29th, pressure fell briskly to rapidly over the whole Indian region, a change, however, which left the relative distribution unaltered, so that strong west winds still held over the greater part of the Gangetic Plain and the distribution of temperature remained much the same as on the previous day.

The steepness of the gradients for west winds in North India diminished rapidly during the last two days of the month in consequence of a recovery of pressure in North-East India and a fall in Western India, as the last depression of the month began to form over the Western Desert. With the fall of pressure in Western India temperature began to rise and by the end of the month was more than 6° higher than usual in Upper Sind.

Nine depressions in all passed over North India during the month or about twice as many as usual. Of these, some were, however, mere waves of low pressure, and only two gave useful rain over the plains of North India.

Pressure.—The mean pressure over the Indian land area was ·015" below normal. Relative to the general distribution, pressure was in moderate defect in the Gangetic Plain and Chota Nagpur, in the Indus Valley, the North-West Frontier Province and North-West Rajputana. It was in moderate excess in the West Coast, in South India, the Burma Coast and the Bay Islands and in Assam. It was in considerable excess in Burma Inland. Except in the latter area, therefore, the local pressure variations were in general small and unimportant.

The following gives the mean pressure variations and

anomalies of the month for the eleven meteorological provinces :—

METEOROLOGICAL PROVINCE.	Variation from normal of mean 8 A.M. pressure of March 1902.	Pressure anomaly, March 1902.
	"	"
Burma Coast and Bay Islands	—'009	+'006
Burma Inland	+'005	+'020
Assam	—'005	+'010
Bengal and Orissa	—'016	—'001
Gangetic Plain and Chota Nagpur	—'026	—'011
Upper Sub-Himalayas	—'019	—'004
Indus Valley and North-West Rajputana	—'028	—'013
East Rajputana, Central India and Gujarat	—'023	—'008
Deccan	—'014	+'001
West Coast	—'006	+'009
South India	—'005	+'010

Temperature.—Although an unusual number of disturbances passed over North India during the month under review, the accompanying precipitation was, in many parts of North India, less than usual and the temperature above normal.

The mean maximum temperature was in excess in all parts of India. It was from 3°·3 to 4°·5 in excess in the Gangetic Plain and Chota Nagpur, the Upper Sub-Himalayas, the Punjab, Rajputana, Central India and Gujarat, the excess being greatest in the three last named areas. It was under 1° only in Bengal and Orissa, South India and the Burma Coast and Bay Islands.

The mean minimum or night temperature was also higher than usual over the whole of India, the greatest excesses, averaging 3°, appearing in the areas which shewed excesses in the day temperatures. The excesses were under 1° only in South India and Burma (Inland).

The mean temperature of the twenty-four hours was similarly in general excess, the variations having the same characteristics as those of the maximum and minimum temperatures. The excess in the mean temperature was under 1° only in South India.

The following table gives temperature variation data for the eleven meteorological provinces :—

METEOROLOGICAL PROVINCE.	VARIATION OF ACTUAL FROM NORMAL OF		
	Mean maximum temperature, March 1902.	Mean minimum temperature, March 1902.	Mean daily temperature, March 1902.
	°	°	°
Burma Coast and Bay Islands	+0·3	+2·2	+1·3
Burma Inland	+1·8	+0·9	+1·4
Assam	+1·8	+1·2	+1·5
Bengal and Orissa	+0·5	+1·8	+1·2
Gangetic Plain and Chota Nagpur.	+3·3	+2·8	+3·1
Upper Sub-Himalayas	+3·6	+2·3	+3·0
Indus Valley and North-West Rajputana.	+3·8	+3·2	+3·5
East Rajputana, Central India and Gujarat.	+4·5	+3·7	+4·1
Deccan	+2·9	+1·9	+2·5
West Coast	+1·0	+1·3	+1·2
South India	+0·6	+0·7	+0·7

Winds.—The chief abnormal features of the air motion during March were the following. Winds were stronger and more westerly than usual in Lower Burma and steadier, with less westing than usual, at the head of the Bay. They were steadier and much more westerly than usual in the Upper Sub-Himalayas, as also in Rajputana. They were much steadier than usual in Sind, although below normal strength. The westerly element was much more prominent than usual in the Central Provinces and Berar. Winds were about 10 per cent. stronger than usual in the Bombay Deccan and about 13 per cent above their normal strength in Mysore.

An important feature was the abnormal prevalence of northerly winds in the Simla hills, where usually the wind is from the south-west.

Humidity.—The air was drier than usual in Baluchistan, the greater part of North and Central India and in the North Deccan, but was damper than usual in the Kashmir Himalayas, in West Bengal and in South India.

The following table gives comparative humidity data for nine meteorological provinces :—

METEOROLOGICAL PROVINCE.	MEAN ABSOLUTE HUMIDITY.		MEAN RELATIVE HUMIDITY.	
	Average actual, March 1902.	Variation of actual from normal, March 1902.	Average actual, March 1902.	Variation of actual from normal, March 1902.
	"	"	%	
Burma Coast and Bay Islands.	·775	+·008	70	— 2
Bengal and Orissa	·760	+·032	74	— 1
Gangetic Plain and Chota Nagpur.	·407	+·044	43	0
Upper Sub-Himalayas	·287	—·052	39	—11
Indus Valley and North-West Rajputana.	·489	+·082	54	+ 1
East Rajputana, Central India and Gujarat.	·293	—·009	27	— 6
Deccan	·267	—·064	24	— 8
West Coast	·766	+·034	72	— 1
South India	·532	+·019	51	0

Cloud.—Except in the Bay Islands, the south of the Peninsula and the hill and submontane districts of Upper India, where there was a moderate excess, the cloud amounts were everywhere less than usual, the deficiency being greatest in the Central Provinces, Berar and the North Konkan, the two last areas being practically cloudless throughout the month.

The following gives comparative data of cloud for nine meteorological provinces :—

Meteorological Province.	Mean cloud amount.	
	Average actual, March 1902.	Variation of actual from normal, March 1902.
Burma Coast and Bay Islands	2·1	—0·1
Bengal and Orissa	2·7	—0·5
Gangetic Plain and Chota Nagpur	1·5	—0·5
Upper Sub-Himalayas	3·1	—0·1
Indus Valley and North-West Rajputana	3·1	—0·4
East Rajputana, Central India and Gujarat	1·8	—0·9
Deccan	0·7	—1·3
West Coast	0·7	—0·8
South India	2·3	—0·2

Rainfall.—The rainfall of the month was actually or practically *nil* in the Deccan, East Rajputana, Central India and Gujarat, and was in considerable to serious defect in the North-West Frontier Province, the Indus Valley and North-West Rajputana. Less than half the normal amounts were received in the Upper Sub-Himalayas and in Burma (Inland). In Assam the mean fall was about four-fifths of the normal amount. Bengal and Orissa, and the Burma Coast and Bay Islands all received amounts averaging 30 per cent. in excess. In other areas the falls were approximately normal.

The following gives comparative rainfall data of eleven meteorological provinces :—

Meteorological Province.	Rainfall.			
	Mean actual for March 1902.	Mean normal for March.	Variation of actual from normal, March 1902.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Burma Coast and Bay Islands.	1·09	0·69	+0·26*	+ 38
Burma Inland.	0·15	0·35	—0·20	— 57
Assam	3·48	5·20	—0·95*	— 18
Bengal and Orissa	1·89	1·48	+0·41	+ 28
Gangetic Plain and Chota Nagpur.	0·55	0·51	+0·03	+ 6
Upper Sub-Himalayas	0·37	0·79	—0·42	— 53
Indus Valley and North-West Rajputana.	0·17	0·51	—0·34	— 67
East Rajputana, Central India and Gujarat.	0	0·12	—0·12	—100
Deccan	0·01	0·44	—0·43	— 98
West Coast	0·60	0·51	+0·09	+ 18
South India	0·47	0·45	+0·02	+ 4

* A reference to Table I will show that the means in columns 2 and 3 are derived from a smaller number of stations than the means in the 1st column. The sum of the figures in columns 2 and 3 will, therefore, not agree with the figures in column 1.

JOHN MURRAY.

Atmospheric Pressure.

The mean 8 A.M., pressure of the whole of India was ·015 inch below the normal.

Relatively to this, pressure was in local defect over nearly the whole of Northern India and in Ceylon. The negative anomalies were small except at Jacobabad and Hyderabad for which data are given in the following table :—

Station.	Variation from normal of mean 8 A.M. pressure of March 1902.	Pressure anomaly, March 1902.
	"	"
Hyderabad	—·036	—·021
Jacobabad	—·035	—·020

Pressure was in local excess over the remainder of the Indian area, including the whole of the Peninsula, Burma and Assam. The excess was most marked, or the positive anomalies were greatest, in Upper Burma. The following gives data for that area:—

Station.	Variation from normal of mean 8 A.M. pressure of March 1902.	Pressure anomaly, March 1902.
	"	"
Kindat	+·024?	+·039?
Mandalay	+·022?	+·037?
Bhamo	+·012	+·027

The mean pressure of the month was either normal or in slight excess at the hill stations (with the exception of Wellington) and more or less in defect in the neighbouring plains. The vertical pressure anomalies were hence positive slight to moderate in amount except in the case of Wellington and Coimbatore.

The following data for nine pairs of stations illustrate this feature :—

HILL STATION.	Variation from normal pressure, March 1902.	PLAIN STATION.	Variation from normal pressure, March 1902.	Vertical pressure anomaly (Hill–Plain).
	"		"	"
Quetta . .	+·013	Jacobabad . .	—·035	+·048
Leh . . .	—·002	Lahore . .	—·016	+·014
Murree . .	+·002	Peshawar . .	—·028	+·030
Simla . . .	+·022	Ludhiana . .	—·016	+·038
Ranikhet . .	+·007	Bareilly . .	—·022	+·029
Chakrata . .	+·003	Roorkee . .	—·020	+·023
Mount Abu . .	+·005	Deesa . .	—·032	+·037
Pachmarhi . .	+·002	Seoni . .	—·010	+·012
Wellington . .	—·012	Coimbatore .	—·008	—·004

The preceding data show that there was a general excess of pressure at the hill stations as compared with the plains, and that it was greater in amount at Quetta than at other hill stations, thus indicating that the abnormal conditions and actions giving rise to it were most pronounced in the plateau area to the north-west of India.

Relative excess of pressure in the middle and higher atmospheric strata with respect to the plains has, it may be noted, been a persistent feature of the pressure distribution since October 1901, a feature on the whole most marked in the month of January.

The pressure conditions differed little from normal in Persia, Arabia and the Equatorial region.

The following table gives pressure variation and anomaly data for eleven meteorological provinces of India for the month of March and also the corresponding data of February for comparison :—

PROVINCE OR DIVISION.	Variation from normal of mean 8 A.M., pressure of March 1902.	Pressure anomaly, March 1902.	Variation from normal of mean 8 A.M. pressure of February 1902.	Pressure anomaly February 1902.
	"	"	"	"
Burma Coast and Bay Islands .	—·009	+·006	+·095	+·007
Burma Inland	+·011	+·026	+·116	+·028
Assam	—·005	+·010	+·102	+·014
Bengal and Orissa . . .	—·016	—·001	+·093	+·005
Gangetic Plain and Chota Nagpur	—·026	—·011	+·091	+·003
Upper Sub-Himalayas . .	—·019	—·004	+·093	+·005
Indus Valley, North-West Frontier Province and North-West Rajputana.	—·028	—·013	+·082	—·006
East Rajputana, Central India and Gujarat.	—·023	—·008	+·079	—·009
Deccan	—·014	+·001	+·084	—·004
West Coast	—·006	+·009	+·071	—·017
South India	—·005	+·010	+·086	—·002

It will be seen from the preceding statement that the pressure variations in March were opposite in general character to those of the previous month and were also much less marked, thus indicating the re-establishment of approximately normal pressure conditions.

The following summarizes the chief features of the mean pressure conditions of the month :—

(1) Mean pressure over the whole Indian area was in slight defect (—·015″).

(2) Pressure was locally in defect in Northern India The deficiency was however generally small, exceeding ·02″ only at Hyderabad (Sind), where it was —·021″.

(3) Pressure was locally in excess in the Peninsula, Burma and Assam, the excess being greatest in Upper Burma where it ranged between ·022″ and ·039″ (?).

(4) Pressure was in excess at the hill stations, relatively to the neighbouring plains stations, the relative excess being greatest at Quetta where it was ·05″.

A reference to the Weather Review for January will show that the chief features of the pressure conditions in March were in general similar to those of the month of January.

Barometric depressions and cyclonic storms of the month.

The month of March was more disturbed than usual in Northern India in consequence of the advance of an unusually large number of depressions of the cold weather type from west to east across that area. These disturbances were, however, with two exceptions, mere waves of low pressure and gave little or no rain.

The principal feature of the weather of the month was the occurrence of abnormally heavy rain in parts of North-Eastern India during the passage across that area of the disturbances of the month.

The following is a brief history of the depressions of the month.

At the beginning of the month a very ill-defined disturbance—apparently the continuation of the depression which had appeared over Sind at the close of the previous month—lay over the South Punjab. Skies were moderately to thickly clouded in the submontane and hill districts of Upper India and light to heavy snow had fallen in Kashmir and some local showers of rain on the outer ranges of the Punjab Himalayas and the neighbouring

plains districts. The disturbance was transferred eastwards during the next two days to the submontane districts of North-Eastern India where it filled up on the 4th. As it passed into North-East India, dry weather with westerly winds and clear or lightly clouded skies prevailed in the Gangetic Plain. While this disturbance was crossing Northern India, important changes were in progress in the Persian region, accompanying the development and movements of the first depression of the month.

The following is an account of this storm :—

Cold weather storm of the 3rd to the 6th of March.—The origin of this storm is doubtful. A depression was generated over the Gulf of Lyons on the 25th of February. It apparently passed eastwards through South Italy on the 26th into Greece on the 27th. Pressure began to decrease at Baghdad on the 28th, when the weather became unsettled and south-east winds appeared. It is hence possible, though from the scanty data incapable of proof, that the fall of pressure at Baghdad may have been caused by the easterly advance across Asiatic Turkey and Mesopotamia of the depression shown over Greece on the 27th. Whatever its origin, the disturbance passed eastwards through Persia on the 2nd, into Baluchistan and Sind on the 3rd. The pressure changes in progress in the Indian area at this time were, however, not favourable to its further advance and it was hence stationary during the next 24 hours. These unfavourable conditions passed away during the 4th and the depression, having resumed its easterly advance, passed through Rajputana on the 5th, Bundelkhand on the 6th, Baghelkhand on the 7th and reached Bengal on the 8th. The disturbance gave rise to a shallow and feeble secondary depression in the Punjab on the 6th. The latter was as usual very short-lived and filled up almost completely during the next 24 hours. The double disturbance gave moderate rain or snow in the Punjab and Kashmir Himalayas.

The primary depression gave some cloud but no rain during its passage across the Gangetic Plain into Bengal.

Feeble cold-weather disturbance in Baluchistan and Northern India from the 5th to the 9th March.—This disturbance, which did not originate in the plateau of Persia, as in that area, on the 4th and 5th, pressure was rising and in excess of the normal, appears to have formed in South Baluchistan on the 5th and 6th. This inference is supported by the fact that although the previous depression was passing through the Punjab on the 5th and influencing winds there and in Rajputana somewhat strongly, the winds at the Sind stations exhibited a marked tendency to a cyclonic circulation around a low pressure area apparently central in South Baluchistan. It moved eastwards to Rajputana and the adjacent districts of the United Provinces on the 7th, and reached the south-eastern districts of the United Provinces on the 8th and Central Bengal on the 9th. It was throughout a very slight disturbance and exercised little influence on the weather.

Feeble disturbance and depression of the 7th to the 14th March.—This disturbance appears to have formed in Persia during a period when high pressure conditions prevailed in South-East Europe.

The following gives the changes of pressure at the Persian and Baluchistan stations from the 6th to the 9th :—

Date.	Pressure change during 24 hours preceding 8 A.M. of date.						
	Baghdad.	Teheran.	Ispahan.	Bushire.	Jask.	Quetta.	Chaman.
	"	"	"	"	"	"	"
6th March .	—·027	+·075	+·200	—·002	+·025	+·081	+·111
7th ,, .	—·136	—·125	—·100	—·046	0	+·028	+·034
8th ,, .	—·117	—·130	—·100	—·066	—·050	—·011	—·050
9th ,, .	+·190	+·090	+·025	+·034	+·026	—·022	—·048

The preceding data indicate that the depression originated in the Persian area, or more probably in Asiatic Turkey. It moved eastwards across Baluchistan on the 9th, and reached the South-West Punjab on the 10th.

The following data define its position at 8 A.M. of the 10th :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"					
Khushab .	29·861	—·091	—·059?	ESE	1	2	...	Fine.
Montgomery	·847	—·078	—·065	S	5	1	...	
D. I. Khan .	·817	—·101	—·122	N	2	0	...	Clear.
Mooltan .	·834	—·092	—·104	SE	1	0	...	
Bikaner .	·853	—·088	—·058	W	4	0	...	

Pressure was on this day in defect over nearly the whole of the Indian area. The deficiency exceeded a tenth of an inch over Northern India and was absolutely greatest in the area of depression in the Punjab, where it was an eighth of an inch. Skies were at this time more or less clouded in Kashmir and the North Punjab but no rain or snow had fallen.

11th March.—Pressure had fallen briskly to rapidly in Rajputana, the South-East Punjab and the west of the United Provinces and the depression, which was in the West Punjab on the previous day, now lay over the South-East Punjab, North Rajputana and the west of the Gangetic Plain.

The following gives data showing its position at 8 A.M.:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours	Cloud.	Rainfall.	WEATHER.
	"	"	"					
Ludhiana.	29·815	—·045	—·085	NW	4	8	...	
Lahore .	·773	—·078	—·137	NW	4	8	...	Thunder-storm.
Montgomery.	·777	—·070	—·122	N	15	0	...	Duststorm.
Mooltan .	·807	—·027	—·130	N	1	0	...	
Bikaner .	·781	—·072	—·133	WNW	8	7	...	
Sirsa .	·703	—·114?	—·196	NE	5	0	...	
Delhi .	·760	—·091	—·139	SSW	5	6	...	
Meerut .	·764	—·065	—·135	Calm	2	8	...	
Roorkee .	·793	—·033	—·107	S	4	0	...	Dust haze.

The central depression lay over the South-East Punjab near Sirsa, where pressure was nearly two-tenths of an inch below the normal. Weather continued fine with little or no cloud in North-Western India.

12th March.—By this date pressure had increased briskly to rapidly in the area occupied by the depression on the 11th and had fallen in the east of the Gangetic Plain and of the Central Provinces where the disturbance now was. The following data show the position and character of the central depression at 8 A.M.:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"					
Benares .	29·737	—·084	—·151	ESE	3	0	...	Clear.
Allahabad .	·724	—·074	—·172	ENE	5	1	...	
Sutna .	·759	—·073	—·150	NNW	4	0	...	
Gaya .	·788	—·054	—·104	NE	5	6	...	
Gorakhpur .	·785	—·014	—·082	NNE	1	6	...	Cloudy.

Pressure was now a sixth of an inch in defect at the centre of the disturbance which was hence not quite so deep as on the previous day. Skies were practically free from cloud in North-Western India but had clouded over in North-Eastern India.

13th March.—A brisk to rapid rise had taken place in the Gangetic Plain and a slight rise in West and Central Bengal, pressure having at the same time, been steady or fallen slightly in Orissa and the north-west angle of the Bay. The depression, which lay over Allahabad on the previous day, had been displaced south-eastwards and now lay over Orissa and the adjacent districts of the Central Provinces. It had diminished still further in intensity and was now a diffused disturbance of slight importance. Moderate to heavy rain had fallen in Bengal, the falls being heaviest in Deltaic Bengal where the following noteworthy amounts were recorded:—

DISTRICT.	Station.	Rainfall during 24 hours preceding 8 A.M. of 13th March 1902.
		Inches.
KHULNA	Mollahat	7·35
	Morelganj	5·76
BACKERGUNGE . . .	Patuakhali	3·83
KHULNA	Kaliganj	3·40
	Tala	3·35
	Paikgacha	3·33
	Rampal	3·25
RANGPUR	Bagdogra	2·82
	Rangpur	2·59

The disturbance was apparently transmitted eastwards across the head of the Bay during the day but in the absence of marine data it is not possible to trace its further progress with certainty. That very unsettled weather prevailed in that area is, however, proved by the fact that the Intermediate Light vessel, about 9 A.M., experienced squalls of hurricane intensity. There was also a good deal of thunder and lightning during the day.

14th March.—Pressure had increased briskly in Orissa and the eastern districts of the Central Provinces and had given way on the East Bengal coast. These changes, as well as the character of the air movement in the north of the Bay on this day, suggest the presence of a slight residual depression in the extreme north-east of the Bay. But high pressure conditions favouring northerly winds were by now re-established in Bengal and Assam and fine weather with clear skies and low temperature hence set in over that area and held steadily for some days.

Cold weather storm of the 12th to the 17th March.—This storm almost certainly formed in the Persian area. Pressure decreased by upwards of a fifth of an inch at Baghdad during the 24 hours preceding 8 A.M. of the 10th. Skies had also clouded over at that station and a light shower of rain fallen. Thereafter, the disturbance began to advance eastwards and pressure fell rapidly (nearly a sixth of an inch) at Teheran and Ispahan during the next 24 hours. The fall had extended to Baluchistan by the 12th, but was not so large in amount as in the Persian area, thus indicating that the disturbance had diminished considerably in intensity while passing through East Persia. The disturbance entered Upper India on the 12th, as a shallowish depression. After remaining nearly stationary in that area till the 14th, it began to advance rapidly

eastwards as a large diffused area of low pressure, which crossed the Punjab on the 15th and the United Provinces on the 16th, reaching Bengal on the 17th. The disturbance was practically of no importance and in its passage across Northern India had very little influence on the weather of North India.

Disturbance of the 16th to the 22nd March.—This was in several respects the most interesting storm of the month. It is possible that this storm was the continuation of a depression which formed over South-East Europe in the second week of the month. The daily charts issued by the Russian Meteorological Department show that a deep depression formed over the Black Sea on the 12th and 13th and that it was transferred rapidly eastwards and lay to the north of the Caspian Sea on the 14th. In the absence of information for the region lying to the east of the Caspian Sea it is not possible to trace with exactness its further movements and character. But the changes in the direction of air movement at the stations on the east shore of the Caspian Sea as well as at Teheran, Kabul, Chitral and Kashgar during the period, 15th to 17th, appear to indicate that the depression was on the 14th displaced south-eastwards across the Trans-Caspian region and reached North Afghanistan on the 16th. This change in the line of march of the depression from east in South-East Europe to south-east in the Trans-Caspian region, seems to have been associated with and determined by the advance on the 12th of an anticyclone in a south-easterly direction from Sweden and Norway which reached the Caspian on the 16th.

The following table shows the character of the air movement and weather at Teheran, Kabul, Chitral and Kashgar during the period 14th to 17th :—

DATE.	Station.	Wind direction at 8 A.M.	Rainfall.	WEATHER.
			Inch.	
14th March	Teheran . . .	Calm	...	Fine.
	Kabul . . .	SE	0·06	Drizzling.
	Chitral . . .	Calm	0·02	Cloudy.
	Kashgar . . .	Calm	...	Clear.
15th „	Teheran . . .	W	...	Cloudy.
	Kabul . . .	SE	0·10	Drizzling.
	Chitral . . .	Calm	0·05	Overcast.
	Kashgar . . .	Calm	...	Clear.
16th „	Teheran . . .	W	...	Fine.
	Kabul . . .	SE	0·20	Overcast.
	Chitral . . .	Calm	0·29	Do.
	Kashgar . . .	Calm	...	Clear.
17th „	Teheran . . .	NW	...	Do.
	Kabul . . .	NW	0·45	Overcast.
	Chitral . . .	S	0·40	Cloudy.
	Kashgar . . .	Calm	...	Do.

Whilst this disturbance was drifting across Afghanistan on the 16th, local actions, the chief of which was undoubtedly an unusually large excess of temperature, gave rise to a feeble depression in Sind. This depression intensified to some extent during the day and extending northwards under the influence of the Afghanistan depression covered the whole of the South-West Punjab and Upper Sind on the 17th.

The following gives an account of the subsequent march of this storm across Northern India :—

17th March.—Pressure had given way rapidly in the West Punjab and Upper Sind and a shallow depression, in the central area of which pressure was an eighth of an inch below normal lay over that area. Skies were heavily clouded in Upper India and some showers of rain had fallen in the submontane and hill districts. Moderate snow was falling on the higher ranges of Kashmir.

A very rapid fall of the barometer had taken place at Chitral and Kashgar and a southerly wind had sprung up at the former station. Weather was disturbed in the region represented by these stations and nearly half an inch of rain had been received at Chitral. In the absence of information for Central Asia, it is not possible to determine fully the cause of these disturbed conditions, although judging from the southerly wind at Chitral it is almost certain that they were not directly related to the disturbance in the Punjab on this day, but were due to the advance into that region of the disturbance passing through Afghanistan on the previous day.

18th March.—Pressure had increased rapidly at Chitral and had been steady at Kashgar. The wind had died down to a calm at the former station where skies had cleared, and was easterly at Kashgar where skies were still overcast. Meantime large and important changes had occurred in Upper India where pressure had decreased with great rapidity and the depression had intensified and extended, now covering the whole of the Punjab.

The following table gives data showing its character and position at 8 A.M. :—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
Mooltan .	29·651	—·163	—·245	Calm	1	0	0·05	
D. I. Khan .	·698	—·074	—·208	N	3	6	0·04	
Montgomery.	·693	—·153	—·184	NE	12	2	0·09	Showery.
Lahore .	·695	—·152	—·187	SE	6	0	0·50	Thunderstorm.
Khushab .	·699	—·152	—·184	ENE	12	6	0·10	Showery.
Ludhiana .	·686	—·171	—·087	E	4	4	0·12	Do.
Sialkot .	·704	—·147	—·175	ENE	7	0	0·33	
Rawalpindi	·674	—·174	—·231	Calm	4	0	0·22	

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Peshawar .	29·657	—·234	—·301	Calm	2	3	0·39	Showery.
Murree .	...	—·173	—·208	SSE	1	10	0·90	
Srinagar .	...	—·255	—·283	NE	7	10	1·04	
Sonemarg .	...	—·209	...	NNE	3	10	1·76	Snowstorm.
Skardu .	...	—·280	...	ENE	1	8	0·70	Continuous rain.
Dras .	...	—·210	...	Calm	2	10	0·65	
Leh . .	...	—·241	—·261	W	2	10	...	
Gilgit .	...	—·371	...	E	5	10	0·35	
Para .	...	—·186	...	WNW	20	0	0·47	Strong wind.
Kila Drosh	...	...	...	NE	...	6	0·42	

The preceding data indicate that the decrease of pressure was largest (upwards of two tenths of an inch) in Kashmir and at Peshawar and that pressure was now from a sixth to a third of an inch below the normal over that area, the deficiency being greatest in Kashmir and the extreme north-west of the Punjab. These facts suggest that the disturbance, which lay to the west of Chitral on the previous day, had passed eastwards into the mountain region to the north of the Punjab.

The depression in Upper India on this day was hence probably a double disturbance with two distinct centres, one over the hills between Murree and Kila Drosh and the other over the plains of the Punjab near Mooltan. Moderate to heavy rain or snow had fallen in the submontane and hill districts of Upper India and some local showers in Baluchistan.

The following were the most noteworthy falls:—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8A.M. of 18th March.
		Inches.
Kangra .	Nagar	2·44
Jummoo .	Punch	2·04
Kashmir .	Sonemarg	1·76
	Sopore	1·53

19th March.—The pressure changes were very irregular. Pressure had increased rapidly in the Punjab plains and had fallen to a moderate extent over the United Provinces and the adjacent districts of Central India. The depression in the Punjab plains on the 18th had apparently passed eastwards and now covered the whole of the Gangetic Plain, over the greater part of which pressure was upwards of a sixth of an inch in defect.

The following gives data for stations in the central area of the depression:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"					
Allahabad .	29·676	—·076	—·184	ENE	3	5	...	
Sutna . .	29·690	—·090	—·170	WSW	6	0	...	Clear.
Cawnpore .	29·697	—·055	—·142	E	3	2	...	
Mainpuri .	29·695	—·031	—·152	ESE	3	8	...	

Southerly winds prevailed in Lower and Central Bengal and were continued as easterly winds up the Gangetic Plain as far as Delhi and Umballa. Skies had cleared in the Punjab but were densely clouded in North-Eastern India. Light showers had fallen in Upper India, chiefly in the submontane and hill districts.

Pressure had continued to give way in Kashmir and the Punjab Himalayas and was now nearly four-tenths of an inch below the normal at Leh. Winds had shifted to west at Leh and west-north-west at Dras, indicating that the disturbance which was passing through Chitral on the previous day was now in East Kashmir. Skies were overcast at the Kashmir stations and moderate snow had fallen on the higher ranges and light rain in the valley.

20th March.—A rapid recovery of pressure had occurred in Kashmir and the disturbance in that area had either filled up or passed into Thibet.

Pressure had increased briskly to rapidly in the Indo-Gangetic Plain, (West) and the Central India Plateau and fallen to a slight extent in Bengal, Orissa and the eastern districts of the Central Provinces. The depression in the United Provinces on the previous day had been transferred eastwards and was now central over Bihar, Chota Nagpur and the adjoining districts of the United Provinces. The following table gives data showing the character and position of the central area:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Chaibassa .	29·738	—·042	—·101	W	2	0	...	
Burdwan .	29·738	—·051	—·115	SW	7	0	...	
Hazaribagh .	29·729	—·011	—·116	E	9	2	...	
Darbhanga .	29·743	—·027	—·099	ESE	9	4	1·14	Showery.
Purnea .	29·792	—·019	—·053	Calm	9	2	1·03	Showery
Patna . .	29·749	—·007	—·099	ESE	12	0	...	
Gaya . .	29·743	+·013	—·114	NE	8	4	...	Duststorm.
Benares .	29·746	+·035	—·105	E	3	0	...	Dusthaze.
Allahabad .	29·743	+·067	—·112	E	5	0	...	Dusthaze.

The preceding data show that the depression on this day was of large extent, but of feeble intensity, pressure at the centre being probably not more than a ninth of an inch below the normal. Light to moderate rain had fallen in Assam, North Bengal and North Bihar.

21st March.—The depression in West Bengal on the previous day had advanced in a south-easterly direction into Orissa. It was, however, of slight importance and filled up during the day. Showers had again fallen in the same areas as on the 20th.

Slight disturbance of the 20th to the 23rd.—This depression probably originated in Lower Sind during the 19th, since the data for the Baluchistan stations do not indicate the advance of a depression across that area during the previous days. It advanced along an easterly track during the 20th and was in Gujarat on the 21st and the eastern districts of the Central Provinces on the 22nd. It gave no rain along its path, but determined a moderate burst of rain to Bengal on the 22nd and 23rd. A brisk to rapid increase of pressure occurred in North-Eastern India on the 22nd and the disturbance disappeared.

Slight disturbance of the 22nd to the 25th March.—This depression most probably formed in Upper India. Pressure gave way rapidly at Baghdad on the 18th. The fall extended eastwards to Teheran and Ispahan during the next 24 hours and to Baluchistan on the 20th and 21st. So far as can be judged, however, no definite depression advanced across Persia and Baluchistan into Upper India during this period.

Pressure gave way locally in the Indus Valley during the 21st and a depression of slight intensity shewed over Sind and the South-West Punjab on the morning of the 22nd. The disturbance advanced eastwards to Rajputana and the South Punjab at 8 A.M. of the 23rd, the east of the United Provinces on the 24th and Orissa and South-West Bengal on the 25th. It was throughout feeble and had no influence on the weather beyond giving a few light local showers, chiefly in Kashmir and Assam.

Depression of the 25th to the 28th March.—The disturbance originated in West Persia on the 22nd and was transmitted slowly eastwards along the Persian Gulf into South Baluchistan on the 25th. It was, however, on this day of slight intensity. It advanced thence into Rajputana on the 26th and at the same time gave rise to a secondary depression in the North Punjab and Kashmir. The original or primary depression advanced eastwards during the next 48 hours and was in the central districts of the United Provinces on the 27th and in Bihar and Bengal on the 28th. The secondary disturbance filled up completely during the 27th.

The double disturbance occasioned moderate precipitation in Kashmir and the North Punjab.

A brisk fall of pressure occurred in the submontane districts of North-East India on the 29th, and the depression in this area on the previous day was displaced northwards into North Bengal and Bihar where it remained practically unchanged in position during the remainder of the month. Dry westerly winds with fine weather hence obtained in the Gangetic Plain during this period.

A shallow depression lay over Sind on the last two days of the month. The observations recorded at the Persian stations show that a deepish depression formed over Asiatic Turkey on the 27th and passed eastwards through Central and West Persia on the 28th and it is possible that the low pressure area in Sind may have been the continuation of this depression. The observations at Jask and Quetta are, however, opposed to this supposition. Its complete history will be given in the April Review.

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Wana.*—Snowstorms occurred above 9,000 feet on the 4th, 5th, 6th and 16th, but the total fall was small in amount.

The snowfall during the past winter was lighter than usual and the weather unusually warm.

(2) *Hills, west of Kohat.*—No snow fell on the Kohat border during the month.

(3) *Kabul.*—Snow fell on one day and rain on thirteen days. The total precipitation during the month was equivalent to 2·29 inches of rain. The hills in the vicinity of Kabul were free from snow at the end of the month. The Paghman hills, on the other hand, were covered with snow.

The total snowfall of the season up to the end of March was less in amount than in the winter of 1900-01.

(4) *Kila Drosh.*—Light snow fell on the higher ranges from the 4th to the 6th, on the 14th, 15th, 17th, 22nd and 25th to 27th.

II.—THE PUNJAB AND KASHMIR HIMALAYAS.

(1) *Murree.*—No snow fell at Murree and on the hills near Kahuta during the month.

(2) *Kashmir.*—Dr. Mitra, Meteorological Reporter to the Kashmir Darbar, reports that the past winter in Kashmir was colder than the previous one and that the frost was severe.

Rain fell on several occasions during March, the heaviest fall being 1·04 inches on the 18th. On the 27th snow fell on the surrounding mountains down to 6,500 feet.

The river Jhelum was unusually low in some parts of the valley throughout the winter.

(3) *Leh (Ladakh).*—The following summarizes the reports received from the Revd. Mr. Shawe, Superintendent of the Leh observatory :—

Light snow showers fell in Leh on the 1st, 5th, 6th, 16th, 18th and 19th. Frequent snowstorms occurred

on the neighbouring hills. There was no snow lying at Leh at the end of the month. The snowline was at a height of about 12,500 feet on the northern slopes and at about 14,000 feet on the southern side of the hills at the close of the month. The Chang La Pass to the east of Leh was open at the end of the month.

(4) *Lahoul.*—The snowfall at Kailang during the period, November to March, was only 6 feet 5 inches as compared with 10 feet, the normal of the period. It was practically the same in amount as in the winter of 1899-1900.

The Superintendent of the observatory considers that on the passes the snow is of no great depth this year. Up to the middle of March the snow, at least on the sunny side of the valley, melted up to about 11,000 feet as soon as the sun came out. The winter was hence extremely mild and in consequence the pasture grounds in the hills are likely to become dry early. Even if heavy snow were still to fall the sun is powerful enough to prevent the snow from lying. At the end of February only about a foot of snow lay on the Rotang Pass and the usual snow bridges formed by falls of avalanches were very scarce, as compared with other years.

(5) *Simla Hill Districts.*—No definite information. The snowfall of the season was considered to be much below the average.

(6) *Upper Sutlej Valley.*—Snow fell frequently during the month but melted as it fell. The total fall registered at Poo during the month was equivalent to 8·01 inches of rain. The snowline was at an elevation of 11,000 feet on the hills facing east at the close of the month. The accumulation on the higher elevations was estimated at 15 feet.

The Superintendent of the Poo observatory describes the character of the past winter as follows:—

"The winter up to the 1st of March has been unusually mild with no snow. The snowfalls during March have been exceedingly heavy, bringing the accumulation up to the height of that of an ordinary winter in these regions."

(7) *Chamba.*—Snowstorms occurred on the 1st, 2nd and 16th at levels above 8,000 feet, but the total fall was small in amount.

No snow was lying at any of the observing stations at the end of the month.

The snowfall of the season was considered to be exceptionally light.

(8) *Kulu.*—Snow fell on eleven days in the Kulu Tahsil and on nine days in the Plach Tahsil on elevations above 8,000 feet. Abundant rain was received in the valley. A severe hailstorm occurred on the 18th and 19th and caused much injury to the wheat, barley and poppy crops.

The depth of snow accumulation measured about 12 feet on the Rotang Pass at the end of the month.

The snowfall of the past winter was much less than usual and almost all the passes in the subdivision were open for traffic before the end of the month.

III.—UNITED PROVINCES HIMALAYAS.

(1) *Kumaon.*—The accumulated snow at the end of the month was as follows:—

Utamdhura	31 feet
Ralamdhura	18 ,,
Pindari, Kaphini and Kantela	4 ,,
Byans, Chaudas and Darma	4½ ,,

The snowfall of the past winter in Kumaon was considered to be less than usual during the greater part of the season except in Malla Johar, where it was greater than in the previous year.

(2) *Garhwal.*—Snow fell in the region of the perpetual snows on the 1st and 18th. The falls were on both occasions light. The Mana and Niti Passes remained closed.

The snowfall of the season was much lighter than usual.

Summary of Special Storm Reports.

The following gives a statement of the more important local storms reported by observers in the Indian area:—

March, 7th.—Duststorm at Pachmarhi.
Thunderstorm at Simla from 1-15 A.M. to 4-30 A.M. The storm came from the north-north-east and was followed by a second storm which lasted from 11 P.M. to 5 A.M. of the following day. Hail fell during each storm.

,, *8th.*—Thunderstorm at Simla from 2-15 P.M. to 3 P.M. The storm came from the east. Hail fell for about 20 minutes during the storm.

,, *12th.*—Duststorm at Agra at 5-45 P.M.

,, *16th.*—Thunderstorm at Srinagar from 7 to 8 P.M.

March, 16th.—Severe duststorm at Cawnpore from 11-25 A.M. to 11-40 A.M. The storm came from the north. 7·7 miles of wind were registered between 11-25 A.M. and 11-30 A.M.

,, *23rd.*—Thunderstorm at Ootacamund from 1 P.M. to 3 P.M. It came from the north, and gave 1·42 inches of rain. The accompanying winds were very violent and blew down some trees.

,, *31st.*—Thunderstorm from the west at Gulburga from 4-45 P.M. to 5-10 P.M.

The following reports of hailstorms have been received from district officers:—

March 1st.—Slight hailstorm at Dalhousie.

March 8th.—Hailstorm in ten parganas of the Cachar district It came from the north-west and lasted from 2 to 5 minutes. The largest hailstones were of the size of "large marbles" and did some damage to the chilli crop.

Hailstorm in the Roha Tahsil of the Nowgong district (Assam). The largest stones were half an inch in diameter. The storm came from the west and lasted about 15 minutes. Slight damage was inflicted on the crops.

Hailstorm from the north-west in six parganas of the Cachar district. The largest stones were of the size of a potato. The storm inflicted some damage on the cold weather crops.

" *9th.*—Severe hailstorm in the Kamrup district over an area of 1,198 square miles. The storm lasted about 10 minutes and came from between north-west and south-west. The largest stones were about two inches in diameter.

Hailstorm from the north-west in five parganas of the Cachar district. The stones were of the size of a pea. The storm inflicted some injury on the cold weather crops.

" *13th.*—Hailstorm in the Kapaguda village of the Vizagapatam district from 3 P.M to 3-15 P.M.

" *14th.*—Slight hailstorm from the north-west at Jowai in the Khasi and Jaintia hills. The storm commenced at 1-30 P.M. and lasted 10 minutes. The largest stones were of the size of a pea.

" *19th.*—Slight hailstorm at Samthor in Bundelkhand.

Hailstorm at Barpeta in the Kamrup district. It came from the east and lasted about three minutes. The largest stones measured about half an inch in diameter. Some trees were uprooted by the strong winds accompanying the storm.

Severe hailstorm at Nongpoh in the Khasi and Jaintia hills. The storm lasted about five minutes and came from the west. The largest stones were of the size of a nut.

" *21st.*—Hailstorm at Cherra and the neighbouring villages in the Khasi and Jaintia hills from 2-50 A.M. to 3-50 A.M. The largest stones were of the size of a "big pea.' Slight damage was inflicted on the potato crop and Thana buildings.

" *22nd.*—Hailstorm of slight intensity in the Roha Tahsil of the Nowgong district. The storm came from the west and lasted about 10 minutes. The largest stones measured an inch in diameter. The storm damaged the crops to some extent.

" *24th.*—Hailstorm in part of the Cachar district. It came from the west and lasted about 15 minutes. The largest stones were of the size of an "ordinary marble" and did some slight damage. Severe hailstorm in the parganas Katigora and Phulbari of the Cachar district. The stones were large, varying from the size of a pea to the size of a potato.

" *28th.*—Hailstorm of feeble intensity in the Roha Tahsil of the Nowgong district. The stones were reported to be about an inch in diameter and inflicted much damage on the standing crops in fifteen villages.

" *29th.*—Hailstorm in the Nowgong district (Assam) It came from the west. Much damage was done to the tobacco and betel crops throughout the Sudder Tahsil.

The following earthquake reports have been received during the month:—

March 10th.—Slight shock at Srinagar at 12-30 P.M.

" *28th.*—Earthquake at Skardu, at 9 A.M. The duration of tremor was only a few seconds.

Brief Summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—Fairly steady north-east winds obtained during the month in the centre, west and south of the Arabian Sea, westerly winds (south-west to north-west) in the north and very variable winds in the east, where the air movement is, as a rule, unsteady, being influenced by the varying pressure conditions over the neighbouring land area.

Winds were stronger than usual on the 1st, 6th to the **10th, 16th** and **18th**; of normal intensity on the 5th, 26th and 28th and more or less below their normal intensity on the other days of the month. The variations, from day to day, were, however, larger than usual, the mean daily force over the whole area ranging between 1·7 and 3·7 (Beaufort scale.)

On the mean of the month the air motion over the Arabian Sea was 0·2 below the normal, and the weather fine and settled throughout, except in the extreme south-east where squalls were experienced from the 26th to the 28th.

Conditions were practically normal in the Gulf of Aden. In the south of the Red Sea, on the other hand, the air movement was very vigorous on most days of the month, and more especially from the 8th to the 12th and the 27th to the 29th, when the daily air movement ranged between 700 and 781 miles at Perim, and was, on the mean of the month, nearly 20 per cent. stronger than usual.

Bay of Bengal.—The air motion was fairly normal in character over the Bay except in the extreme north where winds were less westerly and more southerly than usual, a consequence largely of the influence of the cold weather storms of the month which drew the wind into south or south-east during their passage across West Bengal and the east of the Central and United Provinces.

The fourth storm of the month affected the weather over the head of the Bay considerably while advancing eastwards through Orissa on the 13th. The *F. L. V. Planet* stationed at the Intermediate Station experienced squalls of hurricane violence about 9 A.M. and two waterspouts passed to the north-east of the vessel in the morning. Thunder and lightning were incessant, and some heavy showers of rain occurred during the day.

Four other vessels to the north of Lat. 16° N. on this day experienced heavy squalls with thunder and lightning.

Winds were more or less above their normal strength on the 3rd, 5th to 13th, 16th, 17th, 23rd to 25th, 28th, 30th and 31st. They were strongest on the 7th when their average intensity, as determined from the data of 18 vessels, was 3·3 and feeblest on the 29th (1·5). The mean strength of the air movement for the whole month was 2·5, the normal being 2·4.

Weather was fine in the centre and east of the Bay throughout the month. It was, on the other hand, feebly unsettled with occasional squalls and rain in the vicinity of Ceylon on the 26th and 27th.

Equatorial Belt.—The meagre information available for this region indicates that the belt of calms and variable winds, which usually forms one of the more important features of the meteorological conditions of the pre-monsoon period in the South-East Trades region, shifted considerably in position from day to day, but was, on the whole, somewhat further north than usual during the second half of the month.

The data for Zanzibar and the Seychelles show that winds had a strong easterly component at the former and a northerly component at the latter station.

The precipitation of the month was nearly 20 per cent. in defect at the Seychelles and practically normal in amount at Zanzibar.

Temperature of the Air.

The month of March was considerably warmer than usual over by far the greater part of the country due largely to the unusually fine dry weather during the previous cold weather months in Northern India and the scanty snowfall in the mountain areas to the north and west. The excess was exhibited more largely in the day than in the night temperature.

The mean day or maximum temperature of the month was more or less above the normal over the whole of India with the exception of South Madras, the greater part of Orissa and a portion of Bengal defined by the stations of Narayanganj and Jessore. The excess was more than 2° over the whole of North-Western and Central India and West Bengal. It exceeded 4° in Rajputana, Upper and Central Sind, Central India West, Gujarat, Khandesh with the neighbouring districts of the Central Provinces, and locally in a small area in the United Provinces represented by the stations of Roorkee, Dehra Dun, Mainpuri and Cawnpore. The excess was absolutely greatest at the stations, for which data are given below:—

STATION.	MEAN MAXIMUM TEMPERATURE.		
	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	°	°	°
Deesa	102·0	96·1	+5·9
Sambhar	94·4	88·7	+5·7
Ajmer	94·8	89·1	+5·7
Jacobabad	96·7	91·1	+5·6
Ahmedabad	102·8	97·2	+5·6
Hyderabad	98·5	93·1	+5·4
Jaipur	95·1	89·7	+5·4
Bhuj	99·2	93·9	+5·3
Surat	101·8	96·6	+5·2

These stations hence defined the region of largest excess of day temperature during the month in the plains of India.

The variations in the area of deficient day temperature were in all cases small and of no significance.

The highest day temperatures of the month over the Punjab were registered about the end of the second week, in the West Coast between the 7th and the 9th, and over the remainder of India and Burma during the last eight days of the month.

The following gives the absolute maximum at each station where day temperatures exceeding 107° were recorded during the month:—

STATION.	Highest maximum temperature recorded in March 1902.	Date on which recorded.	Highest maximum temperature recorded in March previous to 1902.	Year in which recorded.
	°		°	
Mandalay . . .	107·1	30th	106·6	1896
Midnapore . . .	107·9	29th	107·9	1896
Cuttack . . .	108·5	30th	107·9	1889
Deesa	108·1	26th and 31st.	114·5	1892
Surat	110·1	26th	110·1	1892
Ahmedabad . . .	109·3	,,	108·3	1896
Akola	107·7	28th and 29th.	111·6	1892
Khandwa . . .	107·2	27th and 28th.	109·7	1892
Chanda . . .	107·2	30th and 31st.	112·2	1892
Cuddapah . . .	108·8	23rd	110·3	1893

The previous data show that the highest maximum temperatures recorded in March 1902 were from ½° to 1° above the highest previously recorded in the same month at Mandalay, Cuttack and Ahmedabad.

The variations of the mean minimum or night temperature from the normal were generally similar in character to those of the day temperature. The mean minimum temperature was everywhere above the normal with a few local exceptions of no importance. The excess was moderate to considerable in amount over Lower Burma, Tenasserim and the greater part of Northern India. It was upwards of 4° at the stations for which data are given below:—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	°	°	°
Ajmer	66·0	59·7	+6·3
Saugor	70·4	64·5	+5·9
Jacobabad	65·5	59·6	+5·9
Jhansi	71·0	66·3	+4·7
Jaipur	65·2	60·8	+4·4
Deesa	67·9	63·8	+4·1

The lowest night temperatures of the month were recorded in Upper India between the 19th and the 22nd and in Kashmir during the first three days. They were, however, in no way remarkable.

The mean temperature of the month was above the normal over almost the whole of the country. The excess was less than 1½° at the great majority of stations in the Peninsula, Burma Bengal and Assam. It was more than 4° in Gujarat, Sind and Rajputana East and Central India West. The following table gives comparative data for these divisions:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum, March 1902.	Mean minimum, March 1902.	Mean temperature, March 1902.
	°	°	°
Gujarat	+5·4	+3·9	+4·7
Sind	+4·7	+4·2	+4·5
Rajputana East and Central India West.	+5·7	+4·9	+5·3

The variations of the mean temperature conditions of the month from the normal were the same in character at the hill stations as in the adjacent plains. They were small and of little importance except at the following stations where the mean temperature of the month was upwards of 2° above the normal:—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, March 1902.	Normal, March.	Variation of actual from normal March 1902.
	°	°	°
Chaman	62·5	55·7	+6·8
Mount Abu	74·4	69·6	+4·8
Quetta	56·4	52·1	+4·3
Pachmarhi	75·7	72·3	+3·4
Srinagar	49·5	46·3	+3·2
Cherat	57·7	54·7	+3·0
Mussooree	55·2	52·8	+2·4

Temperature was hence most largely in excess in Baluchistan. Temperature was almost as largely in excess in the Persian area as in Northern India and Baluchistan, an indication that the temperature variations were determined by general and not local actions.

The chief abnormal features of the temperature conditions of the month were:—

(1) Higher temperature, both by day and night, over nearly the whole of India. The excess was most marked

in North-Western and Central India and was slightly greater in the day than in the night temperature.

(2) The temperature variations at the Himalayan stations approximated closely in character to those in the adjacent plains but were smaller in amount.

(3) Temperature was as largely in excess in Baluchistan and Persia as in North-Western India.

The following table gives comparative data of the mean temperature conditions of the month in 56 meteorological divisions of India:—

Province.	Division.	Actual temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	92·4	74·9	83·7	17·6	24·7	0	+2·0	−2·0
	Lower Burma (Deltaic)	94·4	74·3	84·4	20·1	27·2	+1·6	+3·1	−1·5
	Central do.	99·2	68·0	83·6	31·2	46·6	+1·8	+1·0	+0·8
	Upper do.	96·5	65·9	81·3	30·6	48·1	+1·8	+0·9	+0·9
	Arakan	89·6	68·0	79·1	21·0	33·7	?	?	?
Bengal and Assam	Eastern Bengal	89·1	68·8	78·9	20·3	33·6	+0·3	+1·2	−0·9
	Assam (Surma)	89·2	65·0	77·1	24·2	34·1	+3·2	+1·8	+1·4
	Do. (Brahmaputra)	82·1	62·1	72·1	20·0	31·7	+0·4	+0·5	−0·1
	Deltaic Bengal	91·9	71·2	81·6	20·7	35·9	+0·1	+1·8	−1·7
	Central do.	93·5	68·0	80·7	25·5	41·6	+1·1	+1·9	−0·8
	North do.	87·1	62·3	74·8	24·8	40·0	+0·7	+1·8	−1·1
	Bengal Hills	58·3	34·4	46·4	23·9	37·2	+1·8	+1·2	+0·6
	Orissa	91·0	74·2	82·7	16·8	30·4	+0·5	+1·8	−1·3
	Chota Nagpur	94·8	67·6	81·2	27·2	41·2	+3·4	+4·1	−0·7
	Bihar (South)	95·6	67·6	81·7	28·0	45·3	+3·2	+2·7	+0·5
	Do. (North)	91·3	64·0	77·6	27·4	44·0	+1·7	+2·3	−0·6
United Provinces of Agra and Oudh.	United Provinces (East)	96·7	64·0	80·4	32·7	50·2	+3·8	+2·1	+1·7
	Oudh (South)	94·7	62·4	78·6	32·3	50·1	+3·2	+2·1	+1·1
	Do. (North)	92·7	62·8	77·8	29·9	44·1	...	...	...
	United Provinces (Central)	95·5	65·2	80·4	30·3	48·0	+4·3	+3·4	+0·9
	Do. do. (West)	92·2	62·9	77·6	29·4	46·5	+3·3	+2·7	+0·6
	Do. do. (East Sub-montane).	92·2	64·6	78·4	27·6	42·0	+1·7	+2·1	−0·4
	Do. do. (West Sub-montane).	88·2	59·0	73·7	29·2	44·5	+4·0	+2·3	+1·7
	Do. do. (Hills)	63·7	47·5	55·6	16·3	33·1	+1·2	+2·1	−0·9
Punjab and North-West Frontier Province.	Punjab (South-East)	89·8	64·9	77·4	24·9	40·6	+2·4	+2·7	−0·3
	Do. (South)	89·4	59·8	74·6	29·7	44·9	+2·9	+2·9	0
	Do. (Central)	86·6	57·7	72·2	28·9	49·4	...	...	...
	Do. (Submontane)	87·2	59·3	73·2	27·9	45·1	+3·8	+2·5	+1·3
	Do. (Hills)	54·2	34·3	44·3	19·9	40·5	+3·1	+0·9	+2·2
	Do. (North)	79·4	52·5	66·0	27·0	50·1	+3·1	+1·2	+1·9
	Do. (West)	87·9	59·4	73·7	28·5	46·0	+3·1	+3·1	0
Bombay and Malabar Coast Districts (Madras).	Malabar	90·3	76·9	83·6	13·4	21·1	+0·2	+0·4	−0·2
	Madras (South Central)	97·5	70·7	84·1	26·8	40·0	+0·1	+0·4	−0·3
	Coorg	84·6	61·4	73·0	23·2	29·9	0	−0·4	+0·4
	Mysore	93·5	66·9	80·2	26·6	37·1	+1·3	+0·8	+0·5
	Konkan	87·8	75·7	81·8	12·1	20·7	+1·4	+1·8	−0·4
	Bombay Deccan	99·2	67·8	83·5	31·4	40·7	+1·8	+0·6	+1·2
	Hyderabad (North)	99·1	67·0	83·1	32·1	42·1	...	...	...
	Khandesh	100·1	65·0	82·6	35·1	47·1	+4·7	+1·4	+3·3
Central Provinces and Berar.	Berar	102·0	69·8	85·9	32·2	44·4	+3·3	+2·2	+1·1
	Central Provinces (West)	100·9	68·6	84·8	32·3	44·4	+3·7	+2·9	+0·8
	Do. (Central)	98·0	66·2	82·1	31·7	43·5	+3·5	+3·8	−0·3
	Do. (East)	100·1	69·5	84·8	30·6	41·8	+3·5	+1·5	+2·0
Bombay (North)	Gujarat	102·3	70·9	86·6	31·5	45·4	+5·4	+3·9	+1·5
	Kathiawar and Cutch	94·5	68·6	81·5	25·9	38·6	+3·9	+2·8	+1·1
	Sind	94·8	67·5	81·2	27·3	43·2	+4·7	+4·2	+0·5
	Baluchistan Hills	72·0	39·8	55·9	32·2	54·7	+7·0	+4·1	+2·9
Rajputana and Central India.	Central India (East)	95·8	64·5	80·2	31·4	46·1	+3·9	+3·1	+0·8
	Rajputana (East), Central India (West)	96·4	66·1	81·3	30·3	45·3	+5·7	+4·9	+0·8
	Do. (West)	96·8	66·8	81·8	30·0	45·5	+4·1	+2·2	+1·9
Madras	East Coast (North)	89·2	73·6	81·4	15·6	23·6	+2·4	+0·6	+1·8
	Hyderabad (South)	100·1	72·3	86·2	27·8	38·2	+1·7	+1·3	+0·4
	Madras (Central)	102·8	74·0	88·4	28·8	42·4	+1·8	+1·1	+0·7
	East Coast (Central)	93·9	73·2	83·6	20·7	32·8	+0·6	+0·4	+0·2
	Do. (South)	91·8	73·3	82·6	18·5	31·3	−0·1	+0·6	−0·7
	Madras (South)	93·9	73·2	83·5	20·7	33·2	−1·2	+0·4	−1·6

The following gives an account of the more important changes of the temperature conditions of the month :—

At the beginning of the month temperature was more or less above the normal over the whole of Northern and Central India. The excess ranged from 4° to 10° over North-Western India and Baluchistan and was exhibited more largely in the day than in the night temperature.

The following variation data illustrate the conditions obtaining on the 1st :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 1st March.	Mean minimum temperature, 1st March.	Mean daily temperature, 1st March.
	°	°	°
Baluchistan	+11·3	+5·1	+8·2
Assam	+4·9	+1·2	+3·1
Bengal	+4·3	+2·4	+3·4
Orissa	0	+0·5	+0·3
Bihar	+6·2	+0·8	+3·5
Chota Nagpur	+4·7	+4·3	+4·5
United Provinces of Agra and Oudh	+7·1	+3·0	+5·1
Punjab	+6·8	+5·0	+5·9
Sind	+10·3	+5·4	+7·9
Rajputana	+9·8	+5·4	+7·6
Gujarat	+4·7	+0·4	+2·6
Central India	+5·3	+2·5	+3·9
Central Provinces	+3·7	+1·4	+2·6
Berar	+3·9	+0·2	+2·1

Temperature increased rapidly in Baluchistan on the 3rd in front of the first depression of the month and on the 4th was 17° to 18° above the average in that area. The warm wave advanced slowly eastwards across Northern India during the next five days and accentuated considerably the excess already prevailing in that area.

The following table giving the largest excess of temperature at two stations on each day from the 4th to the 9th illustrates the progress of the wave :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
4th March	Chaman	+17·9
	Quetta	+16·9
5th ,,	Khushab	+10·8
	Bikaner	+9·6
6th ,,	Roorkee	+13·4
	Ajmer	+13·2
7th ,,	Mainpuri	+13·6
	Roorkee	+13·4
8th ,,	Jhansi	+10·9
	Hazaribagh	+10·7
9th ,,	Ranchi	+10·9
	Hazaribagh	+10·6

The data show that the crest of the wave was in the Punjab and Rajputana on the 5th and 6th, in the United Provinces on the 7th and Chota Nagpur on the 8th and 9th.

The cool wave in the rear of the disturbance caused a rapid reduction of temperature in Baluchistan on the 5th and 6th, so that normal conditions were re-established in that area on the 7th. During the next five days it extended eastwards across Northern India, but was not of sufficient intensity to reduce the prevailing excess completely. Continuing its advance eastwards it passed Burma on the 13th.

The following variation data for the period, 7th to the 12th, show the march of the wave across Baluchistan and Northern India :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	7th March.	8th March.	9th March.	10th March.	11th March.	12th March.
	°	°	°	°	°	°
Baluchistan	−0·2	−0·8	+7·7	+8·4	+1·0	+6·7
Sind	+3·3	+3·7	+4·5	+4·8	+5·2	+0·3
Punjab	+6·3	+4·6	+4·2	+5·4	+8·2	+3·5
Rajputana	+8·7	+7·3	+3·8	+3·0	+4·3	+4·3
Gujarat	+4·9	+3·7	+5·0	+4·3	+2·2	+2·3
Central India	+9·3	+7·0	+4·8	+3·2	+3·3	+3·9
United Provinces of Agra and Oudh.	+10·6	+7·2	+5·6	+3·0	+2·4	+5·3
Bengal	+5·2	+5·6	+6·1	+5·1	+4·0	+2·9
Assam	+4·7	+5·6	+5·5	+2·5	+1·4	+0·3
Burma	+1·6	+2·1	+3·2	+3·0	+2·4	+1·5

The fourth disturbance of the month was preceded by a wave of high temperature and followed by an ill-defined cool wave.

The excess due to the warm wave was most marked in Baluchistan on the 9th and 10th and in Upper India on the 11th. The cool wave in the rear of the disturbance appeared in Baluchistan on the 11th and extended into Upper India on the 12th.

The storm exercised but little influence on the weather in North-Western India. On the other hand, it gave a moderately heavy burst of rain to North-Eastern India on the 13th. Temperature hence fell very rapidly in North-Eastern India on the 13th, partly due to the cool wave in the rear of the storm and partly to the occurrence of the rainfall and was in considerable defect from the 13th to the 15th.

The following temperature data of the 14th illustrate

the effect of the two waves on the temperature conditions of Northern and Central India :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 14th March.	Mean minimum temperature, 14th March.	Mean daily temperature, 14th March.
	°	°	°
Assam	−4·3	−0·2	−2·3
Bengal	−9·0	−0·5	−4·8
Orissa	−2·0	−0·1	−1·1
Bihar	−6·3	+1·6	−2·4
Chota Nagpur	−7·9	0	−4·0
United Provinces of Agra and Oudh	+0·7	0	+0·4
Punjab	+9·3	+5·1	+7·2
Sind	+5·4	+6·8	+6·1
Rajputana	+4·9	+2·0	+3·5
Gujarat	+2·5	+1·6	+2·1
Central India	−0·8	+0·1	−0·4
Central Provinces	−1·5	+0·4	−0·6
Berar	−1·8	−1·9	−1·9

Whilst this disturbance was passing through North-Eastern India on the 13th, the fifth storm of the month was approaching the North-West Frontier from the highlands of Persia and causing a large increase of temperature. Thus on the 14th the mean temperature was 18° above the normal of the day at Chaman and 13° above at Quetta. These high temperature conditions extended eastwards from Baluchistan over the whole of Northern India during the next four days. The following gives data for the axis or line of greatest excess of temperature of the wave from the 15th to the 18th :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
15th March	Jacobabad	+12·7
16th ,,	Ajmer	+12·8
17th ,,	Sutna	+7·7
18th ,,	Ranchi	+5·1

Temperature diminished to some extent in the rear of the depression in Baluchistan and Upper India on the 15th and 16th, but the further progress of this cool wave was arrested by the approach of a warm wave of considerable intensity from the west in front of the sixth disturbance of the month. The increased temperature accompanying the advance of the warm wave was most marked in Baluchistan on the 17th, in Rajputana on the 18th, in Central India and East Rajputana on the 19th and in Chota Nagpur and the east of the Central Provinces on the 20th and 21st. The cool wave in the rear appeared in Baluchistan on the 19th and advanced eastwards from that area to Bengal on the 23rd. As with the coal wave of the 14th, the intensity of this wave also increased considerably during its passage across Bengal in consequence of the occurrence of a series of thunderstorms in that area and the reduction of temperature was hence as large in Bengal as in Upper India.

The advance of these waves is indicated by the following data :—

DATE.	WARM WAVE.		COOL WAVE.	
	Greatest excess.	Station.	Greatest defect.	Station.
	°		°	
17th March	+14·4	Chaman	−9·8	Chaman.
18th ,,	+12·5	Bikaner	−12·4	Rawalpindi.
19th ,,	+10·4	Ajmer	−5·7	Meerut.
20th ,,	+9·0	Jubbulpore	−4·8	Gorakhpur.
21st ,,	+7·1	Ranchi	−12·6	Berhampore.
22nd ,,				
23rd ,,				

No marked changes of temperature accompanied the seventh and eighth disturbances of the month lasting from the 20th to the 25th. The following gives variation data of the 25th for Baluchistan and Northern and Central India :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 25th March.	Mean minimum temperature, 25th March.	Mean daily temperature, 25th March.
	°	°	°
Baluchistan	+6·7	+13·6	+10·2
Assam	−8·6	−3·4	−6·0
Bengal	−2·4	+1·2	−0·6
Orissa	−1·8	+2·4	+0·3
Bihar	−1·2	+0·7	−0·3
Chota Nagpur	+2·6	+2·7	+2·7
United Provinces of Agra and Oudh	+1·4	+0·8	+1·1
Punjab	0	+4·9	+2·5
Sind	+4·7	+7·1	+5·9
Rajputana	+4·4	+1·3	+2·9
Gujarat	+5·7	+4·6	+5·2
Central India	+4·2	+1·8	+3·0
Central Provinces	+2·7	+0·2	+1·5
Berar	+2·8	−0·1	+1·4

The preceding data indicate that approximately normal conditions now prevailed except in Baluchistan, Sind and Gujarat where temperature had risen largely above normal in front of the ninth depression of the month.

The following table giving the greatest variations from the normal at two stations from the 25th to the 30th illustrates the advance and character of the warm and cool waves accompanying this disturbance :—

Date.	Warm wave.		Cool wave.	
	Greatest excess.	Station.	Greatest defect.	Station.
	°		°	
25TH MARCH	+ 13·1	Chaman		
	+ 7·2	Jacobabad		
26TH "	+ 9·5	Deesa		
	+ 9·2	Jaipur		
27TH "	+ 6·8	Mainpuri		
	+ 7·0	Saugor		
28TH "	+ 8·3	Sutna	—12·5	Murree.
	+ 7·9	Cawnpore	— 7·3	Chaman.
29TH "	+ 3·6	Mymensingh	— 5·3	Montgomery.
	+ 3·2	Dhubri	— 3·5	Sirsa.
			— 3·7	Jubbulpore.
30TH "			— 3·0	Gopalpur.

On the 30th temperature was nearly normal over the whole of Northern India, but was in large excess in Baluchistan.

The following gives data for these areas :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 30th March.	Mean minimum temperature, 30th March.	Mean daily temperature, 30th March.
	°	°	°
Baluchistan	+8·7	+3·1	+5·9
Assam	+2·2	—0·8	+0·7
Bengal	+1·8	—0·2	+0·8
Bihar	+0·4	+2·9	+1·7
Chota Nagpur	+0·3	+2·2	+1·3
United Provinces of Agra and Oudh	—0·4	+1·5	+0·6
Punjab	—0·2	+0·6	+0·2
Sind	+4·7	—2·1	+1·3
Rajputana	+0·7	—1·5	—0·4
Central India	—0·9	—1·4	—1·2
Central Provinces	+0·9	—1·5	—0·3
Berar	+2·2	+0·8	+1·5

During the next 24 hours temperature increased over the whole of Northern India, the rise being very rapid in North-Western India and slight in North-Eastern India, so that at 8 A.M. of the 31st temperature was from 2° to 7° above the average in the former area and practically normal in the latter.

The following table gives variation data for this day :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 31st March.	Mean minimum temperature, 31st March.	Mean daily temperature, 31st March.
	°	°	°
Assam	+2·6	—0·2	+1·2
Bengal	+1·2	+0·5	+0·9
Orissa	+1·7	+1·3	+1·5
Bihar	+0·4	+3·7	+2·1
Chota Nagpur	+0·2	+1·2	+0·7
United Provinces of Agra and Oudh	+2·0	+1·8	+1·9
Punjab	+2·9	+1·5	+2·2
Sind	+3·2	+4·3	+3·8
Rajputana	+5·1	+1·2	+3·2
Gujarat	+4·1	+0·6	+2·4
Central India	+1·2	+0·1	+0·7
Central Provinces	+1·1	—0·4	+0·4
Berar	+0·9	—1·7	—0·4

It will be seen from the preceding account of the temperature changes in Extra Tropical India that there was a rapid succession of warm and cool waves during the month. The cool waves were with one exception very feeble and exercised little influence on the temperature conditions save in North-Eastern India, where their action was supplemented by the occurrence of rainfall.

The temperature conditions in the Peninsula were, as is usually the case in the winter months, unaffected by the disturbances of the month in Northern India and were hence not characterized by any large abnormal features.

The following variation data for every third day indicate the character of the temperature conditions prevailing in that area during the month :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of										
	1st Mar.	4th Mar.	7th Mar.	10th Mar.	13th Mar.	16th Mar.	19th Mar.	22nd Mar.	25th Mar.	28th Mar.	31st Mar.
	°	°	°	°	°	°	°	°	°	°	°
West Coast	+0·7	+0·8	+1·7	+2·3	+0·2	+0·9	+1·4	+0·6	+0·9	+1·3	+1·6
Bombay Deccan	+2·3	+2·6	+2·9	+2·7	—0·9	+1·8	+2·3	+0·1	+2·4	+3·3	+2·3
Mysore	—0·2	+0·8	—0·3	+1·5	+1·8	+0·1	+1·3	+2·3	+2·1	+1·2	—0·2
Madras Coast	—1·3	—2·7	—1·0	+1·5	+2·0	+0·6	+1·5	+1·6	+0·7	—2·1	—0·4
Madras Deccan	+0·2	+0·1	—1·1	+1·6	+2·2	+0·9	+3·1	+2·9	+3·1	—1·5	+1·6
South India	—3·0	—1·7	+0·2	+0·3	+2·6	—0·2	—0·3	+1·8	+2·0	—3·4	—1·3

It may be noted that the considerable deficiency towards the end of the month in Madras was associated with a moderate burst of rain in the south of that area due to an influx of north-east winds from the Bay.

A noteworthy feature of the temperature conditions of the month was the contrast on several occasions between the variations in the east and in the west of the Peninsula, the excess in one area accompanying deficiency in the other, and *vice versâ*.

The inverse character of the temperature variations in these areas is shown by the following data:—

PRESIDENCY.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF												
	1st Mar.	2nd Mar.	3rd Mar.	4th Mar.	5th Mar.	7th Mar.	13th Mar.	14th Mar.	17th Mar.	27th Mar.	28th Mar.	29th Mar.	30th Mar.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Bombay	+1·5	+1·4	+1·8	+1·7	+2·3	+2·3	−0·4	−0·7	+1·8	+2·4	+2·3	+1·6	+2·0
Madras	−1·1	−1·7	−1·0	−0·9	−0·7	−0·6	+2·2	+1·7	0	−0·2	−1·5	−1·0	−0·7

Winds.

March is usually the first month of the hot weather season and although the air motion over India is that characteristic of the hot weather, it is usually unsteady, more especially in the Gangetic Plain and Upper India. North-westerly to westerly winds obtain in the Gangetic Plain, easterly winds in the Assam Valley and southerly winds in South Bengal. In West Bengal and South Bihar, the area between these more or less opposing movements, the winds are especially unsteady and variable.

The mean air movement varied little from the normal either in direction or intensity at Port Blair. Winds were considerably above their normal strength at Diamond Island and were more directly from the west than usual. They were, on the other hand, feebler than usual on the Arakan Coast, represented by Akyab, and the northerly element in their direction was very strongly marked. The following gives data for these two stations in illustration:—

STATION.	MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, March 1902.	Normal, March.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
Diamond Island	N 60° W	N 42° W	285	206	+79
Akyab	N 3 W	N 53 W	66	93	−27

Winds were more southerly and much steadier than usual in Lower Bengal and Orissa, as shown by the following data:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		
	Actual percentage, March 1902.	Normal percentage, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Southerly deflection.
				°	°	°
Calcutta	53	49	+ 4	S 29 W	S 36 W	+ 7
Saugor Island	76	61	+15	S 7 W	S 26 W	+19
False Point	89	37	+52	S 20 W	S 50 W	+30

Winds were somewhat less steady and lighter than usual in Bihar and Chota Nagpur and the westerly element in the mean direction was less strongly marked than usual. They were, on the average of the month, approximately normal in direction and steadiness, but stronger than usual in the eastern districts of the United Provinces. The following data illustrate these features:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, March 1902.	Normal percentage, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	March Actual, 1902.	Normal, March.	Variation of actual from normal, March 1902.
				°	°			
Hazaribagh	50	54	− 4	N 60 W	N 74 W	183	194	−11
Darbhanga	21	31	−10	S 59 W	S 78 W	78	113	−35
Allahabad	40	40	0	N 60 W	N 62 W	146	110	+36

Winds were generally slightly stronger and steadier than usual in the Upper Sub-Himalayas. The mean wind direction differed considerably from the normal and was much more westerly than usual.

The following gives data for three representative stations:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, March 1902.	Normal percentage, March.	Variation of actual from normal, March 1902.	March Actual, 1902.	Normal, March.	Westerly deflection.	March Actual, 1902.	Normal, March.	Variation of actual from normal, March 1902.
				°	°	°			
Roorkee	23	25	− 2	N 80 W	N 64 W	+16	94	72	+22
Lahore	55	31	+24	N 34 W	N 10 W	+24	74	70	+ 4
Ludhiana	43	34	+ 9	N 63 W	N 45 W	+18	77	50	+ 27

Winds were weaker than usual during the month in the North-West Punjab, Sind and Rajputana. They varied irregularly from the normal in direction, but were in

Rajputana, as in the Upper Sub-Himalayas, on the whole more westerly than usual.

The following gives data for three typical stations :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual March 1902.	Normal, March.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	°	°			
Peshawar	N 1 W	N 18 E	53	91	—38
Jacobabad	S 63 E	N 87 E	85	91	— 6
Jaipur	N 84 W	N 39 W	91	113	—22

The chief feature of the air movement in these areas was the increased steadiness, most marked in Sind, for which data are given below :—

Station.	Mean steadiness.		
	Actual percentage, March 1902.	Normal percentage, March.	Variation of actual from normal, March 1902.
Jacobabad	48	15	+33
Kurrachee	73	60	+13

The following gives comparative data of the mean air movement of the month in Northern India :—

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, March 1902.	Normal percentage, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
Bengal . . .	51	43	+ 8	203	185	+18
Bihar . . .	21	31	—10	78	113	—35
Orissa . .	89	37	+52	258	266	— 8
Chota Nagpur . .	50	54	— 4	183	194	—11
United Provinces of Agra and Oudh.	40	34	+ 6	86	75	+11
Punjab . . .	37	27	+10	68	70	— 2
Sind	61	38	+23	160	186	—26
Rajputana . . .	44	34	+ 0	126	161	—35

Winds were, as usual in March, very unsteady in the Deccan and were generally of about their normal strength.

The westerly element of the air movement was much more strongly marked than usual in the Central Provinces and Berar. The following gives data for three stations :—

Station.	Mean wind direction.		
	Actual, March 1902.	Normal, March.	Westerly Deflection.
	°	°	
Akola	N 52 W	N 43 W	+ 9
Buldana	N 51 W	N 28 W	+23
Khandwa	N 50 W	N 45 W	+ 5

Winds were stronger and steadier than usual at Karwar and less steady and below their normal intensity at Bombay. The mean actual direction of the air movement was, however, fairly normal at both these stations, being on the whole somewhat more westerly than usual. The following gives data in illustration :—

Station.	Mean steadiness.			Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual percentage, March 1902.	Normal percentage, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Westerly deflection.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
Bombay .	40	52	—12	N 54° W	N 31° W	+23°	206	270	—64
Karwar .	79	77	+ 2	N 80 W	N 75 W	+ 5	111	96	+15

Winds were approximately normal in character in Southern India except locally at Bellary, Bangalore and Salem where the mean direction was more easterly than usual. The following gives data for these stations :—

Station.	Mean wind direction.		
	Actual, March 1902.	Normal, March.	Easterly deflection.
	°	°	
Bellary	S 51 E	S 35 E	+16
Bangalore	S 82 E	S 27 E	+55
Salem	S 82 E	S 66 E	+16

The following gives data of the mean air movement of the month in different parts of the Peninsula:—

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, March 1902.	Normal, percentage, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
Central Provinces .	37	29	+ 8	138	125	+13
Berar	41	45	— 4	145	145	0
Bombay Deccan . .	11	11	0	260	231	+29
Madras Deccan . .	22	21	+ 1	106	107	— 1
Madras Coast . .	74	81	— 7	152	150	+ 2
Mysore . . .	43	40	+ 3	146	128	+18
South India . . .	48	38	+10	95	126	—31
West Coast . .	60	65	— 5	159	183	—24

The air movement was much more irregular than usual in the hill districts of Northern India. The most abnormal feature was the frequent prevalence of northerly winds in the Simla hills instead of the normal south-west winds.

Winds were unusually steady and somewhat stronger than usual at the entrance to the Red Sea, as shown by the following data :—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, March 1902.	Normal percentage, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
Perim	93	55	+38	539	441	+98

They were, on the other hand, feebler than usual at Zanzibar and the Seychelles and contained a large easterly component at the former and a northerly component at the latter station. This is shown below :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, March 1902.	Normal, March.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	°	°			
Zanzibar . . .	S 70 E	S 34 E	99	141	—42
Seychelles . .	N 16 W	N 31 W	114	127	—13

Winds were 0·2 weaker than usual, on the mean of the month, in the Arabian Sea. They were above their normal strength on the 1st, 6th to the 10th, 16th and 18th, and of normal strength or below, during the remainder of the month.

The data indicate that winds were very strong in the south of the Red Sea from the 8th to the 12th and again from the 27th to the 29th, when south-easterly gales were experienced at Perim, the mean velocity of the wind at that place on these days varying between 30 and 33 miles per hour.

The air movement was, on the average of the whole month, 0·1 above its normal strength in the Bay of Bengal. It was stronger than the normal during three well-defined periods, *viz.*, from the 5th to the 13th, from the 23rd to the 25th and on the 30th and 31st. The local sea breezes at the head of the Bay were somewhat more vigorous than usual on most days during the month.

The following gives the chief features of the mean air movement of the month which, it may be noted, were directly related to the abnormal pressure conditions of the period :—

(1) Winds were much steadier than usual in Bengal and Orissa and contained a strong southerly element.

(2) They were less westerly than usual in Bihar and Chota Nagpur and somewhat below their normal strength and steadiness.

(3) Winds were, on the mean of the month, more westerly than usual in the Upper Sub-Himalayas, Rajputana, Berar and the Central Provinces.

(4) Winds were lighter than usual at Zanzibar and the Seychelles, and at the former station blew more directly from the east than usual.

Humidity and Cloud.

The chief features of the humidity conditions of the month were similar in general character to those of the previous month, but were somewhat less strongly marked.

The air contained somewhat more aqueous vapour than usual over the Bay Islands and the mean relative humidity of the month was normal in that area.

The following gives data for Port Blair and Cocos Island:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	"	"	"	%	%	
Port Blair . . .	·879	·863	+·016	76	76	0
Cocos Island . .	·788	·768	+·020	72	72	0

The air was slightly damper than usual over Bihar, Chota Nagpur and the West Bengal Coast.

The following gives data in illustration:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	"	"	"	%	%	
Darbhanga . . .	·516	·447	+·069	56	54	+2
Hazaribagh . . .	·327	·284	+·043	35	34	+1
Saugor Island . .	·853	·811	+·042	80	78	+2

The air was much damper than usual in the south of the Peninsula. As temperature was above the normal in that area, this was due mainly to an actual increase in the amount of vapour present in the air.

The following gives comparative data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	"	"	"	%	%	
Salem	·773	·638	+·135	67	56	+11
Madras . . .	·813	·772	+·041	77	74	+ 3

The mean humidity of the month was also in moderate excess in the South Deccan and in Sind, a consequence of an excess of aqueous vapour in the air, the excess ranging in some cases from 20 to 40 per cent. The following gives data for stations in these areas:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	"	"	"	%	%	
Belgaum . . .	·420	·400	+·020	46	41	+5
Bellary . . .	·506	·421	+·085	39	36	+3
Kurrachee . . .	·709	·591	+·118	71	65	+6
Jacobabad . . .	·418	·301	+·117	40	37	+3

The air was slightly drier than usual in the outer ranges of the Himalayas. It was, on the other hand, damper than usual in the interior hill districts of Upper India.

The following gives data for the hill stations in Northern India:—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	"	"	"	%	%	
Srinagar . .	·295	·232	+·063	82	77	+ 5
Kailang . .	·130	·117	+·013	75	70	+ 5
Leh . . .	·106	·102	+·004	59	58	+ 1
Darjeeling . .	·269	·252	+·017	73	73	0
Ranikhet . .	·208	·232	−·024	45	53	− 8
Simla . . .	·171	·185	−·014	46	50	− 4
Chakrata . .	·193	·194	−·001	52	53	− 1

The mean humidity of the month was less than the normal over the whole of the remainder of India and Baluchistan. The air was abnormally dry over a portion of this area including Baluchistan, the Upper Sub-Himalayas, Berar and the neighbouring districts of the Central Provinces.

The deficiency was most pronounced at the stations for which comparative data are given below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	"	"	"	%	%	
Roorkee . . .	·260	·328	—·068	35	49	—14
Ludhiana . . .	·298	·364	—·066	40	54	—14
Meerut . . .	·279	·357	—·078	36	49	—13
Nagpur . . .	·236	·355	—·119	20	34	—14
Buldana . . .	·181	·282	—·101	16	28	—12

The unusual dryness of the air in these areas was in part due to the decreased amount of vapour in the air and in part to excessive temperature.

The mean humidity of the month was less than 25 per cent. at the stations, for which comparative data are given below:—

STATION.	RELATIVE HUMIDITY.		
	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	%	%	
Sholapur	24	31	— 7
Pachmarhi	23	34	—11
Deesa	23	29	— 6
Khandwa	21	31	—10
Chikalda	21	33	—12
Nagpur	20	34	—14
Akola	19	29	—10
Buldana	16	28	—12

The driest areas hence included Berar, the western and central districts of the Central Provinces, South-West Rajputana and parts of the Bombay Deccan.

The air was much drier than usual in Baluchistan and probably also in Persia and Arabia, an indication that conditions obtaining in Upper India probably extended westward over the plateau area of Iran and Baluchistan.

The following gives data for four stations in these areas:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.	Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
	"	"	"	%	%	
Quetta . . .	·197	·214	—·017	45	57	—12
*Muscat . . .	·628	·575	+·053	63	68	— 5
*Ispahan . . .	·175	·238	+·063	50	76	26
Aden . . .	·632	·705	—·073	63	71	— 8

* 8 A.M. data.

The month was very dry over the greater part of Northern and Central India and the Deccan. The driest period was from the 22nd to the 30th.

The following gives the lowest humidities recorded during this period:—

STATION.	Date.	Hour.	Lowest humidity recorded during March 1902.
			%
Nagpur	22nd . .	4 P.M.	8
Akola	25th . .	"	5
Buldana	26th . .	"	5
Nagpur	" . .	"	8
Deesa	27th . .	"	6
Belgaum	28th . .	"	8
Akola	" . .	"	5
Khandwa	" . .	"	7
Meerut	30th . .	"	8
Roorkee	" . .	"	3
Hazaribagh	" . .	10 A.M.	8

The following is a brief summary of the mean humidity conditions of the month:—

(1) Humidity was normal in the Bay Islands.

(2) The air was much damper than usual in Southern India to the south of Lat. 12° N.

(3) Humidity was in slight to moderate excess in West Bengal, the South Deccan and Sind.

(4) The air was drier than usual in Baluchistan, the interior of Northern India and Central India, the North Deccan and Mysore. The mean humidity of the month was most largely below the normal at Ludhiana, Roorkee and Nagpur (each —14) and Meerut (—13).

(5) The air was damper than usual in the interior of the Upper India hill districts.

The variations from normal of the mean cloud amount of the month were generally similar in character to the variations of the humidity conditions.

The mean cloud amount of the month was in excess of normal in the Bay Islands, Southern India (to the south of Lat. 13° N.), Upper Sind and the submontane and hill districts of Upper India. The excess was less than 1·0 in amount except at the stations for which data are given below :—

Station.	Mean cloud amount. Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
Kailang	7·6	6·2	+1·4
Chakrata	5·1	3·9	+1·2
Mysore	3·5	2·3	+1·2

Cloud was more or less in defect over the whole of the remainder of the country. The deficiency was large and marked over Lower Sind, South-West Rajputana, the North Konkan, the Bombay Deccan, Berar and the central and western districts of the Central Provinces, as is shown by the data of the following stations :—

Station.	Mean cloud amount. Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
Nagpur	0·4	2·5	−2·1
Buldana	0·1	2·2	−2·1
Akola	0·2	1·7	−1·5
Khandwa	0·4	1·7	−1·3
Deesa	1·0	2·3	−1·3
Kurrachee	1·4	2·7	−1·3
Bombay	0·3	1·6	−1·3

The deficiency was most pronounced in Berar and the neighbouring districts of the Central Provinces, areas in which humidity was also largely below the normal.

Skies were practically free from cloud (*i.e.*, the cloud amount was 0·3 or less) at the following stations :—

Station.	Mean cloud amount. Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
Bombay	0·3	1·6	−1·3
Akola	0·2	1·7	−1·5
Chikalda	0·2	2·4	−2·2
Buldana	0·1	2·2	−2·1

The month was unusually cloudy at Zanzibar where the mean cloud amount of the month was 1·1 above the normal. There was, on the other hand, much less cloud than usual at Aden, Perim and the Seychelles, for which data are given below :—

Station.	Mean cloud amount. Actual, March 1902.	Normal, March.	Variation of actual from normal, March 1902.
Perim	0·5	2·0	−1·5
Seychelles	5·6	6·7	−1·1
Aden	1·4	3·2	−1·8

The chief abnormal features of the cloud distribution of the month were :—

(1) Excess in the Bay Islands, South India and the hill and submontane districts of Upper India, most marked at Kailang (+1·4), Chakrata and Mysore (each + 1·2).

(2) Deficiency in the remainder of India, greatest in amount in Berar and the adjacent districts of the Central Provinces.

(3) Considerable excess at Zanzibar and defect at the Seychelles, Aden and Perim.

(4) Skies were practically free from cloud during the whole month in Berar and the North Konkan.

Rainfall.

The rainfall of the month in Northern India occurred solely during the advance of a series of nine depressions or storms of the cold weather type from the highlands of Persia and Baluchistan eastwards to Bengal. In Southern India, on the other hand, the rainfall was due to a temporary determination across that area of strong north-east winds from the Bay.

The month was unusually rainy in Bengal and South Madras and the rainfall of the month was largely above normal in these areas.

The rainfall of the month was, on the other hand, scanty and below the normal over a large part of North-Western and Central India, Baluchistan and the northern half of the Peninsula.

The chief periods of rainfall during the month were:—

1st.—The 1st and 2nd, when light to moderate showers fell in Kashmir and the Punjab hills.

2nd.—The 5th to the 8th, when moderate rain or snow occurred in the Kashmir and Punjab Himalayas.

3rd.—The 12th and 13th, when Bengal obtained moderate to heavy rain and Assam moderate rain.

4th.—The 14th to 19th, when Baluchistan, Kashmir, the greater part of the Punjab and the adjacent districts of the United Provinces received frequent showers.

5th.—The 20th to the 23rd, when moderate rain occurred over Bengal and Assam due to the passage eastwards, across these areas, of the seventh disturbance of the month.

6th.—The 24th to the 29th, when Baluchistan (from the 24th to the 26th), Kashmir (on the 26th and 27th) and the greater part of the Punjab (on the 27th and 28th) received rain from the ninth disturbance of the month. Southern India obtained a moderately heavy burst of rain from the 27th to the 29th and the Assam Valley on the 28th and 29th.

The following table gives comparative rainfall data for the 56 meteorological or rainfall divisions of the empire:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, March 1902.	Average normal, March.	Average actual, March 1902.	Average normal, March.	Variation, of actual from normal March 1902.
				Inches.	Inches.	Inches.
Burma	Tenasserim	1·8	1·4	1·17	0·82	+0·35
	Lower Burma (Deltaic)	0	0·3	0	0·18	—0·18
	Central do.	0	0·1	0	0·03	—0·03
	Upper do.	0·3	0·8	0·09	0·29	—0·20
	Arakan	0	0·4	0	0·34	—0·34
Bengal and Assam	Eastern Bengal	2·7	3·0	1·78	2·31	—0·53
	Assam (Surma)	5·7	9·1	4·67	7·75	—3·08
	Do. (Hills)	6·0	6·0	2·72	4·12	—1·40
	Do. (Brahmaputra)	8·0	6·5	3·91	3·56	+0·35
	Deltaic Bengal	2·8	2·3	2·69	1·44	+1·25
	Central do.	2·9	1·4	1·29	0·80	+0·49
	North do.	5·1	1·9	3·93	1·26	+2·67
	Bengal Hills	6·7	3·8	2·85	1·71	+1·14
	Orissa	1·1	1·9	0·92	1·10	—0·18
	Chota Nagpur	1·2	1·5	0·51	0·73	—0·22
	Bihar (South)	0·8	0·7	0·39	0·33	+0·06
	Do. (North)	2·8	0·8	1·53	0·39	+1·14
United Provinces of Agra and Oudh.	United Provinces (East)	0	0·7	0·01	0·25	—0·24
	Oudh (South)	0	0·6	0	0·27	—0·27
	Do. (North)	1·0	0·8	0·03	0·40	—0·37
	United Provinces (Central)	0	0·6	0·01	0·26	—0·25
	Do. do. (West)	0·1	0·9	0·02	0·34	—0·32
	Do. do. (East Submontane)	0·8	0·7	0·36	0·30	+0·06
	Do. do. (West do.)	0·6	1·5	0·17	0·70	—0·53
	Do. do. (Hills)	2·5	2·6	1·03	1·39	—0·36
Punjab and North-West Frontier Province.	Punjab (South-East)	0·4	0·9	0·06	0·47	—0·41
	Do. (South)	1·0	0·9	0·21	0·48	—0·27
	Do. (Central)	1·9	1·5	0·46	0·89	—0·43
	Do. (Submontane)	1·8	1·7	0·55	1·14	—0·59
	Do. (Hills)	7·1	4·4	3·82	3·44	+0·38
	Do. (North)	4·0	3·4	1·69	1·96	—0·27
	Do. (West)	1·2	1·1	0·71	0·58	+0·13
Bombay and Malabar Coast Districts (Madras).	Malabar	1·6	1·0	1·27	0·53	+0·74
	Travancore	4·4	...	2·34	...	...
	Madras (South Central)	1·4	0·9	0·71	0·53	+0·18
	Coorg	1·9	...	1·36	...	...
	Mysore	0·4	0·7	0·18	0·31	—0·13
	Konkan	0·1	0·1	0·03	0·06	—0·03
	Bombay Deccan	0	0·5	0·01	0·26	—0·25
	Khandesh	0	0·2	0	0·07	—0·07
Central Provinces and Berar.	Berar	0	0·7	0	0·32	—0·32
	Central Provinces (West)	0	0·7	0	0·33	—0·33
	Do. (Central)	0	1·0	0	0·51	—0·51
	Do. (East)	0·1	1·4	0·03	0·64	—0·61

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, March 1902.	Average normal, March.	Average actual, March 1902.	Average normal, March.	Variation of actual from normal, March 1902.
				Inches.	Inches.	Inches.
Bombay (North)	Gujarat	0	0	0	0·01	−0·01
	Kathiawar and Cutch	0	0·1	0	0·02	−0·02
	Sind	0	0·4	0·01	0·16	−0·15
	Baluchistan Hills	1·0	3·2	0·26	1·17	−0·91
Rajputana and Central India.	Central India (East)	0	0·4	0·01	0·16	−0·15
	Rajputana (East), Central India (West)	0	0·5	0	0·19	−0·19
	Do. (West)	0	0·2	0	0·07	−0·07
Madras	East Coast (North)	0·2	1·2	0·11	0·60	−0·49
	Madras (Central)	0·1	0·5	0·03	0·19	−0·16
	East Coast (Central)	0·1	0·1	0·09	0·17	−0·08
	Do. (South)	0·6	0·4	0·36	0·30	+0·06
	Madras (South)	2·7	1·4	2·10	0·99	+1·11

The rainfall of the month was a tenth of an inch or less in 25 out of the 56 meteorological divisions, between a tenth of an inch and half an inch in nine divisions and between half an inch and an inch in five divisions. It was more than two inches in the 9 divisions, for which data are given below:—

Division.	Rainfall.			
	Average actual, March 1902.	Average normal, March.	Variation of actual from normal, March 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Assam Surma	4·67	7·75	−3·08	− 40
Assam Hills	2·72	4·12	−1·40	− 34
Assam Brahmaputra	3·91	3·56	+0·35	+ 10
Deltaic Bengal	2·69	1·44	+1·25	+ 87
North Bengal	3·93	1·26	+2·67	+212
Bengal Hills	2·85	1·71	+1·14	+ 67
Punjab Hills	3·82	3·44	+0·38	+ 11
Travancore	2·34	...	...	...
Madras South	2·10	0·99	+1·11	+112

The greater part of Burma was rainless throughout the month. The Mergui and Tavoy districts of Tenasserim received frequent showers during the month and Upper Burma occasional showers between the 9th and the 25th. The rainfall of the month was hence less than the small normal of the period, except in Tenasserim, where 1·17 inches, instead of the normal 0·82 inch, were received.

Assam received fairly general light to moderate rain from the 9th to the 13th or 14th and from the 20th to the 25th, and local showers between the 15th and 19th and again during the last four days of the month. The falls were generally light, only 3 out of the 116 rain-gauge stations reporting amounts exceeding 2½ inches.

The rainfall of the month was in defect in Assam Surma and Hills, by amounts averaging nearly 40 per cent., and was practically normal in the valley of the Brahmaputra.

The month was singularly wet in some parts of Bengal. Rain fell in that area during three well-defined periods. The first period was from the 12th to 14th when the fourth storm of the month was crossing Bengal. The rainfall was general on the 13th and was on the whole heaviest in Deltaic Bengal. Falls exceeding 2 inches in 24 hours were recorded at a large number of stations, the most noteworthy being the following:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 13th March 1902.
		Inches.
Khulna	Mollahat	7·35
	Morelganj	5·76
	Kaliganj	3·40
	Tala	3·35
	Paikgacha	3·33
	Rampal	3·25

The second period was from the 15th to 19th, during which the rainfall occurred as local thundershowers, chiefly in North, Central and Deltaic Bengal, and was related to the fifth depression of the month.

The third period of rain extended from the 20th to the 23rd and hence coincided with the passage through North-

Eastern India of the sixth disturbance of the month. This burst was general over the whole province though not so heavy as that of the first period.

The following were the only noteworthy falls recorded during this period;—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Cooch Behar	Mickliganj	20th March	2·12
	Cooch Behar	21st "	2·53
Dinajpur	Atwari	" "	2·45
Cooch Behar	Matabhanga	" "	2·40
Jessore	Jhenidah	22nd "	3·20
Balasore	Soro	23rd "	2·60
Jalpaiguri	Baxa	" "	2·29
Rangpur	Sunderganj	" "	2·24

The total rainfall of the month was more or less in excess over the whole province with the exception of Eastern Bengal, Chota Nagpur and Orissa, where it was practically normal.

The following gives comparative data for the nine provincial divisions:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, March 1902.	Average normal, March.	Variation of actual from normal, March 1902.	Percentage variation from normal.	Average actual, March 1902.	Average normal, March.
	Inches.	Inches.	Inches.			
Eastern Bengal	1·78	2·31	—0·53	—23	2·7	3·0
Deltaic Bengal	2·69	1·44	+1·25	+87	2·8	2·3
Central Bengal	1·29	0·80	+0·49	+61	2·9	1·4
North Bengal	3·93	1·26	+2·67	+212	5·1	1·9
Bengal Hills	2·85	1·71	+1·14	+67	6·7	3·8
Orissa	0·92	1·10	—0·18	—16	1·1	1·9
Chota Nagpur	0·51	0·73	—0·22	—30	1·2	1·5
South Bihar	0·39	0·33	+0·06	+18	0·8	0·7
North Bihar	1·53	0·39	+1·14	+292	2·8	0·8

The preceding data show that the excess was most marked in North and Deltaic Bengal, North Bihar and Bengal Hills, areas which obtained two to three times their normal falls.

The rainfall was most abundant in the districts for which data are given below:—

District.	Rainfall.			
	Average actual, March 1902.	Average normal, March.	Variation of actual from normal, March 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rangpur	4·27	1·03	+3·24	+315
Cooch Behar	4·81	1·67	+3·14	+188
Purnea	2·47	0·49	+1·98	+404
Khulna	3·16	1·50	+1·66	+111
Faridpur	3·62	2·25	+1·37	+ 61
Champaran	1·81	0·44	+1·37	+312
Jessore	3·14	1·82	+1·32	+ 73
Darjeeling	2·90	1·60	+1·30	+ 81
Birbhum	1·95	0·68	+1·27	+187
Bhagalpur	1·60	0·44	+1·16	+264
Muzaffarpur	1·53	0·38	+1·15	+303

No rain fell during the month over the greater part of the United Provinces. Local showers during the period from the 16th to the 20th, gave very light and irregularly distributed rain in the Aligarh, Meerut, Pilibhit, Muzaffarnagar and Saharanpur districts. Occasional thundershowers fell in the Dehra Dun, Almora and Garhwal districts during the first eight days of the month and frequent showers between the 16th and the 21st. The falls were generally light to moderate and exceeded one inch in 24 hours at only three rainfall stations out of 28. The east submontane districts, including Gorakhpur, Basti, Azamgarh and Ballia, received sporadic showers on the 13th, 19th and 20th and moderate general rain on the 21st.

The rainfall of the month was below the normal in seven out of the eight divisions, as shown by the following statement:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, March 1902.	Average normal, March.	Variation of actual from normal, March 1902.	Percentage variation from normal.	Average actual, March 1902.	Average normal, March.
	Inches.	Inches.	Inch.			
United Provinces, East	0·01	0·25	—0·24	—96	0	0·7
South Oudh	0	0·27	—0·27	—100	0	0·6
North "	0·03	0·40	—0·37	—93	1·0	0·8
United Provinces Central	0·01	0·26	—0·25	—96	0	0·6
" " West	0·02	0·34	—0·32	—94	0·1	0·9
" " East submontane.	0·36	0·30	+0·06	+20	0·8	0·7
" " West submontane.	0·17	0·70	—0·53	—76	0·6	1·5
" " Hills	1·03	1·39	—0·36	—26	2·5	2·6

There were during the month four periods of rainfall in the Punjab, of which the following is a brief account :—

1st.—The 1st and 2nd.—During this period the rainfall was practically restricted to the Simla and Kangra hills and was light in amount.

2nd.—The 6th to the 9th.—Moderate rain fell during this period in the Simla and Kangra districts and some local showers of little agricultural value in the submontane districts.

3rd—The 16th to 19th.—The whole of the province with the exception of the south-eastern districts obtained fairly general rain. The precipitation was moderate to heavy in the Simla and Kangra districts where the following amounts exceeding 2 inches in 24 hours were registered :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
Kangra	Nagar	18th March	2·44
	"	19th "	2·36
	Palampur	" "	2·32

4th.—The 26th to the 28th.—The precipitation during this period was only moderate in amount and occurred almost solely in the hill, submontane, central and west divisions. It was most general on the 27th.

The following comparative statement giving data for the seven divisions of the province shows that the rainfall of the month was more or less below the normal over the whole province excepting the hills and west divisions which obtained a little more than their normal amounts :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, March 1902.	Average normal, March.	Variation of actual from normal, March 1902.	Percentage variation from normal.	Average actual, March 1902.	Average normal, March.
	Inches.	Inches.	Inch.			
South-East Punjab	0·06	0·47	—0·41	—87	0·4	0·9
South Punjab	0·21	0·48	—0·27	—56	1·0	0·9
Central Punjab	0·46	0·89	—0·43	—48	1·9	1·5
Punjab Submontane	0·55	1·14	—0·59	—52	1·8	1·7
Punjab Hills	3·82	3·44	+0·38	+11	7·1	4·4
North Punjab	1·69	1·96	—0·27	—14	4·0	3·4
West Punjab	0·71	0·58	+0·13	+22	1·2	1·1

The North-West Frontier districts obtained rain during the same periods as the West Punjab. The total fall of the month was more or less in defect except perhaps in the Hazara district.

There were two periods of disturbance and precipitation in Baluchistan. The first period extended from the 14th to the 18th and the second from the 24th to the 26th. The falls were generally light, the total precipitation of the month being only about one fifth of normal.

Kashmir received frequent rain or snow during the month. The days of most general precipitation were the 5th, 6th, 16th to 18th, 26th and 27th. Some moderately heavy falls occurred, the most noteworthy being the following :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
Kashmir	Sonemarg	1st March	3·16
Jummoo	Pader	6th "	2·10
	Ramban	17th "	2·64
	Punch	18th "	2·04

The total fall of the month was probably in general excess, as the following data for the stations for which normals are available would seem to indicate :—

Station.	Rainfall.			
	Average actual, March 1902.	Average normal, March.	Variation of actual from normal, March 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jummoo	0·71	1·14	—0·43	— 38
Ramban	5·49	3·15	+2·34	+ 74
Kishtwar	6·24	5·27	+0·97	+ 18
Punch	5·27	4·33	+0·94	+ 22
Srinagar	4·20	3·10	+1·10	+ 35
Domel	5·07	4·83	+0·24	+ 5
Gilgit	1·23	0·47	+0·76	+162
Leh	0·70	0·24	+0·46	+192
Kargil	2·97	1·61	+1·36	+ 84
Dras	4·05	1·02	+3·03	+297
Anantnag	2·30	2·23	+0·07	+ 3
Iskardo	2·02	1·20	+0·82	+ 68

No rain fell in Rajputana during the month. Some light local showers of no importance occurred in Central India from the 18th to the 20th. The total fall of the month was hence in defect in these areas. The deficiency was, however, small in actual amount, as the normal

rainfall in these districts does not exceed two-tenths of an inch.

A few light local showers were received in the eastern districts of the Central Provinces on the 22nd.

The rainfall was absolutely *nil* in the west and centre of the province and practically *nil* in the eastern districts. Berar also was rainless throughout the month.

The Konkan, the Bombay Deccan and Upper Sind received occasional showers, chiefly during the last week of the month, but the total amounts were small and of no importance. No rain fell over the remainder of the Bombay Presidency during the month.

The rainfall of the Presidency is, as a rule, very small in amount in March but it was even less than usual in the month under review, as is shown by the following data for the six divisions of the province:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, March 1902.	Average normal, March.	Variation of actual from normal, March 1902.	Percentage variation from normal.	Average actual, March 1902.	Average normal, March.
	Inch.	Inch.	Inch.			
Konkan	0·03	0·06	—0·03	— 50	0·1	0·1
Bombay Deccan	0·01	0·26	—0·25	— 96	0	0·5
Khandesh	0	0·07	—0·07	—100	0	0·2
Gujarat	0	0·01	—0·01	—100	0	0
Kathiawar and Cutch	0	0·02	—0·02	—100	0	0·1
Sind	0·01	0·16	—0·15	— 94	0	0·4

Mysore received some light sporadic showers during the second half of the month. The total fall of the month averaged only 0·18″ in amount as compared with 0·31″, the normal for the period.

Central Madras and the northern and central coast districts of Madras received a few local showers during the month which gave an average of less than a tenth of an inch for these areas. South Madras obtained numerous thundershowers from the 8th to the 10th and South-Central Madras some scattered showers between the 11th and the 13th. A fairly general burst of rain occurred over the southern half of the Presidency on the 28th and 29th, due to a strong influx of north-east winds from the Bay. The fall due to this burst was heaviest in the Madura and Malabar districts, the former obtaining an average of 1·34 inches on the 28th, and the latter an average of 1·07 inches on the 29th. Four stations in this area recorded falls of 3 inches, or upwards, *viz.*, Madura (3·04″), Ramnad (3·00″), Palaghat (3·83″) and Manjeri (3·80″).

The rainfall of the month exceeded the normal in South and South-Central Madras, East Coast South and Malabar and was in defect in the remainder of the Presidency.

The following table giving average rainfall data for each collectorate shows fully the distribution of the rainfall in the Presidency during the month:—

Collectorate.	Rainfall.			
	Average actual, March 1902.	Average normal, March.	Variation of actual from normal, March 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	0·09	0·73	—0·64	— 88
Vizagapatam	0·12	0·72	—0·60	— 83
Godavari	0·04	0·37	—0·33	— 89
Kistna	0·19	0·43	—0·24	— 56
Nellore	0·09	0·17	—0·08	— 47
Chingleput	0	0·16	—0·16	—100
Madras	0	0·38	—0·38	—100
North Arcot	0·09	0·26	—0·17	— 65
South Arcot	0·21	0·25	—0·04	— 16
Tanjore	0·74	0·40	+0·34	+ 85
Trichinopoly	0·73	0·40	+0·33	+ 83
Madura	1·83	0·84	+0·99	+118
Tinnevelly	2·51	1·32	+1·19	+ 90
Malabar	1·75	0·77	+0·98	+127
South Canara	0·25	0·13	+0·12	+ 92
Salem	0·67	0·45	+0·22	+ 49
Coimbatore	0·75	0·60	+0·15	+ 25
Nilgiris	2·07	1·52	+0·55	+ 36
Cuddapah	0·05	0·18	—0·13	— 72
Anantapur	0	0·14	—0·24	—100
Bellary	0	0·20	—0·20	—100
Kurnool	0·07	0·21	—0·14	— 67

HEM RAJ.

TABLE I.—Abstract of Observations taken at 8 A.M. at 228 Stations in India, Burma, etc., in March, 1902.

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.				-·009								92·8	+0·3	73·7	+2·2	83·3	+1·3	19·1					27·5
1	Tenasserim and Bay Islands.	Car Nicobar‡ .	25	29·863		29·816	29·948	28th	29·794	12th	·154	80·9	88·7		77·4		83·1		11·3	90·5	18th	74·3	25th	16·2
		Port Blair .	61	29·896	-·006	29·888	29·957	27th	29·861	21st	·096	80·5	90·5	-0·6	77·0*	+0·4	83·8	-0·1	13·5	92·9	30th	73·7	18th	19·2
		Mergui . .	96	29·855	-·006	29·883	29·914	27th	29·810	20th	·104	79·6	90·3	-0·9	74·5	+2·6	82·4	+0·9	15·8	94·1	27th	71·9	15th	22·2
		Tavoy . .	26	29·940	-·007	29·897	30·005	27th	29·892	18th	·113	77·1	93·4	+0·1	72·6	+2·4	83·0	+1·3	20·8	96·2	15th & 27th.	68·0	30th	28·2
		Moulmein .	94	29·853	-·007	29·855	29·920	27th	29·808	18th	·112	79·9	95·4	+1·3	75·3	+2·6	85·4	+2·0	20·1	98·4	9th	69·3	1st	29·1
2	Lower Burma .	Rangoon .	41	29·892	-·028?	29·871	29·951	6th & 27th.	29·845	21st	·106	75·0	96·8	+0·2	72·0	?	84·4	?	24·8	100·1	29th	63·3	2nd	31·8
		Bassein .	27	29·914	-·008	29·877	29·959	6th	29·868	29th	·091	77·5	96·0	+1·6	73·6	+3·1	84·8	+2·4	22·4	100·2	27th	70·2	8th	30·0
		Diamond Island	41	29·900	-·024?	29·876	29·965	27th	29·859	18th	·106	80·2	90·4	?	77·4	+2·4	83·9	?	13·0	92·9	29th	73·2	1st	19·7
5	Arakan .	Akyab . .	20	29·927	-·018	29·890	29·974	5th	29·876	18th	·098	74·1	89·6	+0·5	68·6	?	79·1	?	21·0	95·9	27th	62·2	1st & 2nd.	33·7
3	Central Burma	Toungoo .	183	29·744	-·009	29·870	29·808	6th	29·688	21st	·120	76·8	96·7	?	68·5	0	82·6	?	28·2	102·6	23rd	57·6	1st	45·0
	II.—Burma Inland . .				+·005								97·4	+1·8	66·2	+0·9	81·8	+1·4	31·2					48·1
3	Central Burma.	Thayetmyo .	130	29·795	-·003	29·870	29·870	6th	29·731	29th	·139	78·2	101·6	+1·8	67·5	+1·0	84·6	+1·4	34·1	106·7	31st	58·6	2nd & 3rd.	48·1
4	Upper Burma .	Minbu . .	165	29·762	+·008	29·873	29·883	26th	29·692	22nd	·141	77·0	100·4	+1·1	69·9	+0·6	85·2	+0·9	30·5	106·6	31st	57·0	2nd	49·6
		Yamethin .	657	29·260	+·004	29·874	29·330	26th	29·195	21st	·135	76·3	101·9	+2·8	68·5	+0·4	85·2	+1·6	33·4	107·0	30th	58·2	1st	48·8
		Mandalay .	250	29·683	+·022?	29·885	29·750	26th	29·601	29th	·139	78·8	99·8	+2·1	69·9	+2·0?	84·9	?	29·9	107·1	30th	57·8	4th	49·3
		Kindat . .	377	29·568?	+·024?	29·911?	29·668	26th	29·427	29th	·241	68·9	91·6	+1·4	61·5	+1·7	76·6	+1·6	30·1	101·3	29th	53·8	4th	47·5
		Bhamo . .	381	29·548	+·012	29·895	29·612	25th	29·401	29th	·241	67·0	88·9	?	59·9	?	74·4	?	29·0	97·0	29th	51·7	2nd	45·3
4 a)	Burma Hill Stations.	Taunggyi .										69·0	77·9	-5·0	53·3	-0·2	65·6	-2·6	24·6	82·2	23rd & 30th.	45·0	1st	37·2
		Lashio . .										66·4	88·8	+2·6	56·7	+1·0	72·8	+1·8	32·1	94·1	30th	48·5	1st	45·6
	III.—Assam . . .				-·005								83·5	+1·8	62·7	+1·2	73·1	+1·5	20·8					32·1
7	Surma . .	Silchar . .	104	29·850	-·007	29·908	29·933	26th	29·740	29th	·193	72·2	89·2	+3·2	65·0	+1·8	77·1	+2·5	24·2	94·5	9th	60·4	1st	34·1
8	Brahmaputra .	Sibsagar. .	333	29·624	-·002	29·927	29·720	26th	29·498	29th	·222	64·8	79·5	+0·4	60·5	+0·5	70·0	+0·5	19·0	86·2	3 days	55·9	15th	30·3
		Dhubri . .	115	29·803	?	29·878	29·908	26th	29·640	29th	·268	68·8	86·3	?	63·7	+0·3	75·0	?	22·6	92·7	29th	56·3	5th	36·4
		Tezpur . .	252	29·671		29·891	29·784	26th	29·527	29th	·257	67·1	82·5		63·1		72·8		19·4	88·6	31st	60·0	4 days	28·6
		Dibrugarh .	353	29·607		29·934	29·702	25th	29·478	29th	·224	65·8	80·1		61·1		70·6		19·0	87·2	18th & 19th.	55·9	12th & 14th.	31·3
	IV.—Bengal and Orissa . .				-·016								90·9	+0·5	68·7	+1·8	79·8	+1·2	22·1					37·0
6	East Bengal .	Chittagong .	87	29·853	-·012	29·891	29·914	13th	29·770	29th	·144	74·1	88·1	+1·7	67·8	+0·2	78·1	+1·0	20·6	93·5	28th	63·1	2nd & 4th.	30·4
		Noakhali .	43	29·896		29·887	29·998	13th	29·801	29th	·194	76·6	86·2		69·7		78·0		16·5	91·1	30th	61·4	1st	29·7
		Comilla . .	36	29·897		29·881	29·983	26th	29·803	21st	·180	74·1	90·2		69·6		79·9		20·6	95·3	8th	60·9	1st	34·4
		Sirajganj .	49	29·856		29·856	29·926	16th	29·754	29th	·172	72·3	91·6		66·3		79·0		25·3	98·8	29th & 31st.	59·8	5th & 10th.	39·0
		Narayanganj .	26	29·905	?	29·880	29·992	26th	29·808	29th	·184	74·5	88·9	-1·1	70·3	+2·1	79·6	+0·5	18·6	96·6	29th	64·3	2nd	32·3
		Barisal . .	13	29·900	-·017	29·858	30·012	13th	29·805	29th	·207	75·8	89·5	+0·2	70·6	+1·4	80·0	+0·8	18·9	96·8	29th	63·6	15th	33·2
		Mymensingh .	59	29·859	-·010	29·871	29·940	26th	29·741	29th	·199	72·6	88·6	+1·7	67·4	?	78·0	?	21·2	97·5	29th	61·4	4th	36·1
1	Deltaic Bengal.	Faridpur .	46	29·879		29·874	29·963	26th	29·788	29th	·175	73·6	90·9		68·0		79·5		22·9	97·7	29th.	60·5	4th	37·2
		Jessore . .	33	29·877	-·014	29·857	29·962	26th	29·778	21st	·184	75·5	91·2	-1·2	70·4	+2·2	80·9	+0·5	20·8	99·5	29th	63·7	2nd	35·8
		Calcutta .	21	29·885	-·020	29·853	29·968	26th	29·790	21st	·178	75·6	92·6	+1·8	71·5	+2·0	82·0	+1·9	21·1	99·7	29th	65·6	15th	34·1
		Saugor Island	25	29·883	-·019	29·853	29·966	1st	29·783	21st	·183	79·7	87·0	-0·2	76·3	+1·3	81·7	+0·6	10·7	94·9	30th	67·6	14th	27·3
		Krishnagar .	47	29·863		29·859	29·945	26th	29·745	21st	·200	75·9	93·2		68·7		81·0		24·5	103·0	29th	62·5	4th	40·5
		Midnapore .	149	29·748		29·846	29·932	1st	29·642	20th	·190	77·3	96·7		72·3		84·5		24·4	1 07·9	29th	67·2	15th	40·7

* Mean of 28 days.

‡ Observations of 29 days.

I.

in India, Burma, etc., in March, 1902.

WIND DIRECTION. Number of Winds from										WIND VELOCITY.				HYGROMETRY, 8 A.M.			RAINFALL.													
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind resultant.	Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st December 1901 to 31st March 1902.	Normal rainfall for period, 1st December to 31st March.	Variation from normal of period, 1st December to 31st March.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				1·09	0·69	+0·26					**I.—Burma Coast and Bay Islands.**		
9	2	9	5	2					N 62° E	4·5*	4·5*			82	·869	7·7	2			2·45			13·64			2·30	Car Nicobar†	Tenasserim and Bay Islands.	
3	4	5	2	1	1		5	10	N 25° W	4·0		4·4		83	·864	3·5	1			0·48	0·40	+ 0·08	8·09	8·44	−0·35	0·42	Port Blair .		
31									Calm	2·9	2·6	2·0	+ 30	88	·871	4·2	8	4·70	+3·30	6·24	3·28	+ 2·96	9·13	6·30	+2·83	2·75	Mergui.		
31									Calm	1·6				89	·827	1·8	2	1·60	+0·40	1·75	1·24	+ 0·51	1·90	2·16	−0·26	1·48	Tavoy.		
2	1			9	3	11	2	3	S 22° W	3·0	3·3	3·0	+ 10	77	·786	1·8	0	0·60	−0·60	0	0·36	− 0·36	0·23	1·02	−0·79	0	Moulmein.		
										7·5	6·3	5·0	+ 26	85	·737	1·9	0	0·50	−0·50	0	0·20	− 0·20	0	0·72	−0·72	0	Rangoon .	Lower Burma.	2
8								23	N 45° W	6·2		4·9	+ 27	85	·800	2·0	0	0	0	0	0·01	− 0·01	0·21	0·57	−0·36	0	Bassein.		
1	10						2	18	N 33° W	11·8	11·8	7·9	+ 49	76	·789	2·3	0	0	0	0	0·05	− 0·05	0·28	1·03	−0·75	0	Diamond Island.		
	26	5							N 7° E	3·0	2·9	3·7	− 22	87	·743	0·9	0	0·60	−0·60	0	0·52	− 0·52	0·43	1·40	−0·97	0	Akyab .	Arakan.	5
6	1	4		14	1			5	S 69° E	5·6	5·5	2·8	+ 96	71	·662	2·3	0	0·30	−0·30	0	0·11	− 0·11	0·85	0·51	+0·34	0	Toungoo .	Central Burma.	3
																				0·15	0·35	−0·20					**II.—Burma Inland.**		
	2	2		1	4	5	10	7	S 86° W	4·6		5·2	− 12	54	·521	5·2	0	0·10	−0·10	0	0·03	− 0·03	0·03	0·24	− 0·21	0	Thayetmyo.	Central Burma.	3
7	1	1		12	3	1		6	S 34° E	5·3	6·3			51	·477	0·3	0	0·10	−0·10	0	0·04	− 0·04	0·51	0·70	− 0·19	0	Minbu .	Upper Burma.	4
11	2			13	5				S 37° E	2·1	2·2			60	·514	0·1	0	0·30	−0·30	0	0·21	− 0·21	1·48	1·16	+ 0·32	0	Yamethin.		
2	5	1			19	1		3	S 9° W	2·2	2·2			52	·513	0·5	0	0·40	−0·40	0	0·16	− 0·16	0	0·55	− 0·55	0	Mandalay.		
28	1	1		1					N 52° E	1·2	1·2			82	·584	1·3	1	2·00	−1·00	0·84	0·99	− 0·15	0·84	2·17	− 1·33	0·79	Kindat.		
10	2	12	3			1	1	2	N 37° E	3·3	3·9			79	·521	2·2	0	1·90	−1·90	0·07	0·66	− 0·59	0·84	2·19	− 1·35	0·07	Bhamo.		
	1	1	1	5	9	12	2		S 15° W					47	·337	0·6	0			0	0·12	− 0·12	0·91	1·05	− 0·14	0	Taunggyi.	Burma Hill States.	4(a)
	3	12	5	3	4	1	1	2	N 64° E	4·5				62	·400	2·4	0			0·10	0·58	− 0·48	0·80	1·92	− 1·12	0·06	Lashio.		
																				3·48	5·20	−0·95					**III.—Assam.**		
20		3	7	1					N 81° E	2·0	3·4	3·3	+ 3	80	·646	3·3	7	10·80	−3·80	5·84	8·61	− 2·77	6·26	12·10	− 5·84	1·86	Silchar .	Surma.	7
6	1	20	2	2					N 52° E	2·4	2·2	2·8	− 21	93	·573	5·7	11	9·80	+1·20	3·28	5·11	− 1·83	5·20	8·97	− 3·77	0·50	Sibsagar .	Brahmaputra.	9
5	2	8	13				3		N 64° E	4·9	5·8	6·3	− 8	81	·575	2·5	6	2·40	+3·60	3·62	1·88	+ 1·74	3·67	2·86	+ 0·81	1·06	Dhubri.		
	1	14	13	1	1	1			N 70° E	6·3	6·7			81	·535	2·9	8	5·50	+2·50	2·43			3·10			0·41	Tezpur.		
	4	14	6	4				3	N 52° E	2·8	2·7			85	·524	1·5	6	10·00	−4·00	2·24			5·17			0·73	Dibrugarh.		
																				1·89	1·48	+0·41					**IV.—Bengal and Orissa.**		
	4	8	6	9	3		1		N 89° E	5·3	5·3	5·8	− 9	84	·708	2·6*	3	2·77	+0·23	0·88	2·74	− 1·86	0·88	4·87	− 3·99	0·60	Chittagong.	East Bengal	6
	6	4	3	1	10	4	2	1	S 14° E	2·7	2·5			86	·787	3·6	3	3·26	−0·26	1 81	2·75	− 0·94	1·81	4·57	− 2·76	1·25	Noakhali.		
1			4	2	22	1	1		S 9° E	4·0				88	·715	3·7	2	3·93	−1·93	1·79	2·74	− 0·95	1 81	4·47	− 2·66	0·96	Comilla.		
22	2	1	1		4	1			S 27° E	1·9	2·0			86	·688	1·6‖	4	2·20	+1·80	0·61	1·26	− 0·65	0·61	2·75	− 2·14	0·17	Sirajganj.		
2	1	1	1	7	8	6	2	3	S 9° W	5·8		4·7	+ 23	89	·765	5·0*	3	3·18	−0·18	2·92	2·75	+ 0·17	2·92	4·57	− 1·65	1·30	Narayanganj		
2	4	2	2	4	8	4	1	4	S 5° W	4·6				88	·789	4·0	3	3·03	−0·03	1·54	1·96	− 0·42	1·54	4·27	− 2·73	0·99	Barisal.		
7	1		8	11	3		1		S 56° E	3·2	2·9			83	·662	6·9§	4	3·52	+0·48	1·08	2·03	− 0·95	1·08	3·61	− 2·53	0·31	Mymensingh.		
	1	1	5	8	9	5	2		S 19° E	4·0	3·4			89	·745	1·7	2	3·50	−1·50	3·30	2·30	+ 1·00	3·30	4·19	− 0·89	2·30	Faridpur .	Deltaic Bengal.	10
17		1	1	6	3	2		1	S 36° E	1·5		3·2	− 53	86	·759	4·0¶	2	3·13	−1·13	2·14	1·93	+ 0·21	2·14	3·73	− 1·59	1·70	Jessore.		
6		2	1	1	12	7	1	1	S 14° W	5·6		5·5	+ 2	87	·781	3·7¶	2	2·00	0	1·49	1·19	+ 0·30	1·51	2·73	− 1·22	0·96	Calcutta.		
	1	1	1	1	16	9		2	S 14° W	14·3		12·3	+ 16	86	·872	3·6	3	1·81	+1·19	1·32	1·33	− 0·01	1·32	2·99	− 1·67	0·92	Saugor Island.		
1		3	1	3	9	8	5	1	S 23° W	3·8				81	·722	3·0	2	1·97	+0 03	1·82	1·11	+ 0·71	1·82	2·74	− 0·92	1·41	Krishnagar.		
3	3	1		4	16	3		1	S 3° E	4·7	4·2			75	·703	1·7	2	2·59	−0·59	0·65	1·67	− 1·02	0·65	3·51	− 2·86	0·44	Midnapur.		

† Wind variable 2. § Mean of 14 days. ‖ Mean of 29 days. ¶ Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal	Bankura	298	29·570		29·823	29·652	26th	29·496	29th	·156	77·0	95·6		70·7		83·1		24·9	106·3	29th	64·0	2nd	42·3
		Raniganj	334	29·573?		29·864?	29·661	26th	29·495	29th	·166	74·4	95·5		69·6		82·6		25·9	104·5	29th	64·7	22nd	39·8
		Burdwan	99	29·799	—·023	29·848	29·884	26th	29·687	21st	·197	74·8	95·3	+1·6	70·4‡	+2·0‡	82·8‡	+1·8	24·9	106·4	29th	65·3	16th	41·1
		Naya Dumka	489	29·401?		29·857?	29·480	14th	29·301	29th	·179	76·6	94·0		67·8		80·9		26·2	103·5	29th	61·3	5th	42·2
		Berhampore	67	29·833	—·014	29·849	29·911	26th	29·739	29th	·172	73·5	93·0	+0·3	67·8	+2·1	80·4	+1·2	25·2	102·3	29th	61·1	6th	41·2
		Rampur Boalia.	70	29·833?		29·854?	29·918	26th	29·735	29th	·183	73·3	91·3		66·5		78·9		24·8	101·3	29th	60·1	6th	41·2
		Malda	72	29·802		29·827	29·891	14th	29·679	29th	·212	73·3	91·8		65·6		78·7		26·2	101·9	29th	57·8	2nd	44·1
		Bogra	61	29·831	?	29·846	29·926	26th	29·718	29th	·208	70·2	91·5	+1·3	65·4	+1·5	78·4	+1·4	26·1	101·3	29th	60·2	1st	41·1
12	North Bengal	Dinajpur	123	29·760	—·018	29·842	29·864	26th	29·618	29th	·246	68·7	89·4	+0·3	62·5	+1·2	76·0	+0·8	26·9	97·3	10th	53·4	2nd	43·9
		Rangpur	123	29·798		29·880	29·897	26th	29·649	29th	·248	69·1	87·5		61·8		74·9		25·7	95·4	29th	55·8	2nd	39·6
		Jalpaiguri	284	29·630	?	29·882	29·741	26th	29·462	29th	·279	67·3	85·8	+1·0	62·0	+2·3	73·9	+1·7	23·8	93·4	29th	53·1	4th	40·3
		Cooch Behar	156	29·770		29·886	29·877	26th	29·607	29th	·270	69·2	85·6		63·0		74·3		22·6	90·9	29th	54·7	4th	36·2
17	North Bihar	Purnea	125	29·772	—·006	29·855	29·878	26th	29·630	29th	·248	70·0	90·6	+0·9	63·0†	+2·6†	76·9†	+1·8	27·8	97·8	9th	54·1	2nd	43·7
14	Orissa	Balasore	48	29·859	—·023	29·853	29·944	26th	29·753	21st	·191	76·9	93·6	+0·9	71·7	+2·1	82·7	+1·5	21·9	100·5	8th & 29th.	63·7	15th	36·8
		False Point	18	29·904	—·012	29·867	29·988	27th	29·802	21st	·186	78·9	86·4	−0·9	74·0	+1·8	80·3	+0·5	12·4	94·5	30th	65·0	1st	29·5
		Cuttack	80	29·830	—·022	29·854	29·911	27th	29·735	21st	·176	77·4	98·4	+1·4	74·0‡	+1·5‡	86·2‡	+1·5	24·4	108·5	30th	67·7	4th	40·8
		Puri	24	29·896		29·859	29·985	27th	29·798	21st	·187	79·7	85·7		77·2		81·5		8·5	87·2	26th, 27th & 29th.	72·6	2nd	14·6
	V.—Gangetic Plain and Chota Nagpur.				—·026								94·1	+3·3	65·3	+2·8	79·7	+3·1	28·8					44·7
15	Chota Nagpur	Hazaribagh	2,007	27·876	?	29·848	27·976	1st	27·768	20th	·208	74·1	91·9	+3·3	67·4	+3·6	79·7	+3·5	24·5	99·5	29th	61·2	13th	38·3
		Ranchi	2,128	27·758	?	29·847	27·842	27th	27·656	20th	·186	73·7	91·1	+3·5	67·3	+4·0	79·2	+3·8	23·8	97·9	21st	61·4	14th	36·5
		Daltonganj	730?	29·167?		29·870?	29·270	1st	29·048	19th	·222	70·8	97·1		62·8		80·0		34·3	105·2	20th	55·1	2nd	50·1
		Purulia		29·066		29·839	29·141	26th	28·983	20th	·158	76·2	95·7		68·9		82·3		26·8	105·7	29th	64·6	2nd	41·1
		Chaibassa	760	29·123	—·021	29·843	29·203	27th	29·025	20th	·178	76·6	98·1	+3·3	71·7	+4·7	84·9	+4·0	26·4	105·1	29th	64·9	5th	40·2
1	South Bihar	Gaya	375	29·505	—·034	29·842	29·597	1st	29·399	19th	·198	75·5	96·8	+3·5	68·6	+2·5	82·7	+3·0	28·2	103·2	28th & 29th,	60·7	1st	42·5
		Dehri	351	29·526		29·839	29·617	1st	29·409	19th	·208	75·1	96·6		68·9		82·8		27·7	104·4	28th	60·6	13th	43·8
		Patna	183	29·696	—·028	29·836	29·794	14th	29·594	31st	·200	75·9	93·8	+2·9	66·9	+2·9	80·4	+2·9	26·9	101·7	29th	61·4	13th	40·3
		Arrah	190	29·690		29·836	29·786	1st	29·592	19th	·194	73·9	94·6		P		P		P	102·5	29th	?	P	P
		Buxar	239	29·636		29·835	29·740	14th	29·530	19th	·210	74·5	95·1		66·1		80·7		29·0	103·2	28th	58·5	4th	44·7
17	North Bihar	Bhagalpur	160	29·727		29·843	29·828	14th	29·603	29th	·225	75·5	92·6		66·6		79·6		26·0	102·5	29th	58·6	1st & 2nd	43·9
		Darbhanga	166	29·711	—·021	29·836	29·815	14th	29·570	29th	·245	70·5	89·6	+1·7	65·2	+2·3	77·4	+2·0	24·4	97·1	29th	58·2	5th	38·9
		Muzaffarpur	178	29·710		29·847	29·820	14th	29·581	29th	·239	71·2	90·5		63·4		77·0		27·1	97·7	9th	54·5	1st	43·2
		Motihari	224	29·667		29·855	29·774	13th	29·518	29th	·256	72·0	90·3		60·9		75·7		29·4	99·4	29th	49·9	4th & 5th	49·5
		Chapra	181	29·698		29·837	29·799	14th	29·589	31st	·210	72·8	94·0		64·6		79·3		29·4	101·5	29th	57·0	1st	44·5
18	United Provinces, (East).	Benares	267	29·609	—·034	29·837	29·702	1st	29·486	19th	·216	73·7	96·5	+3·7	63·7	+1·9	80·1	+2·8	32·8	106·3	28th	55·1	1st & 2nd	51·2
		Allahabad	309	29·559	?	29·828	29·658	1st	29·410	19th	·248	75·3	96·9	+3·9	64·3	+2·2	80·6	+3·1	32·6	106·6	28th	57·4	1st & 4th	49·2
23	United Provinces, (East Sub-montane).	Gorakhpur	257	29·611	P	29·832	29·717	14th	29·487	29th	·230	71·5	92·2	+1·7	64·6	+2·1	78·4	+1·9	27·6	99·1	29th	57·1	13th	42·0
19	South Oudh	Lucknow	368	29·498	—·031	29·835	29·590	1st	29·385	19th	·205	72·1	94·7	+3·2	62·4	+2·1	78·6	+2·7	32·3	103·3	28th	53·2	23rd	50·1
20	North Oudh	Bahraich	403	29·452	—·022	29·826	29·550	14th	29·347	19th & 29th.	·203	71·9	92·7	+3·7	62·8	P	77·8	P	29·9	99·6	28th	55·5	11th	44·1
21	United Provinces (Central).	Cawnpore	416	29·458	—·020	29·839	29·554	1st	29·320	19th	·234	72·7	95·1	+4·3	63·0	+2·6	79·1	+3·5	32·1	106·0	28th	54·0	4th	52·0
		Mainpuri	516	29·357	P	29·846	29·446	1st	29·213	19th	·233	71·7	94·6	+4·9	61·6	+2·9	78·1	+3·9	33·0	105·8	28th	53·6	14th	52·2

I—*continued.*

in India, Burma, etc., in March, 1902—continued

WIND DIRECTION. Number of Winds from									Wind Resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.								Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Districts.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st December 1901 to 31st March 1902.	Normal rainfall for period, 1st December to 31st March.	Variation from normal of period 1st December to 31st March.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
17		1	2	3	1	5		2	S 1° W	3·0	3·4			61	·560	2·6	3	1·76	+ 1·24	1·54	1·30	+ 0·24	1·91	2·80	− 0·89	1·25	Bankura .	Central Bengal	11
22		2	4				1	2	N 45° E	1·7				64	·540	2·2	3	1·48	+ 1·52	1·98	0·76	+ 1·22	1·98	2·32	− 0·34	1·23	Raniganj .		
6	2	2	1	1	4	10	3	2	S 49° W	3·9	3·8	3·4	+12	82	·708	2·9†	2	2·16	− 0·16	1·14	1·34	− 0·20	1·21	2·66	− 1·45	0·65	Burdwan .		
10	2	1	7	3	3		1	4	N 86° E	3·5	3·8			55	·492	2·2	4	1·41	+ 2·59	1·48	0·81	+ 0·67	1·48	2·26	− 0·78	0·87	Naya Dumka		
6	1	1	3	1	10	7	2		S 12° W	2·7	2·9	3·4	−15	78	·647	2·6‡	4	1·73	+ 2·27	2·84	0·97	+ 1·87	2·84	2·46	+ 0·38	0·82	Berhampur		
23		2	1		1	3	1		S 27° W	1·3	1·4			77	·635	2·1	5	1·68	+3·32	1·48	1·15	+ 0·33	1·48	2·40	− 0·92	0·54	Rampur Boalia.		
1		6	3	4	5	5	5	2	S 1° E	2·3	2·1			70	·571	0·3	5	1·10	+ 3·90	1·26	0·82	+ 0·44	1·26	2·49	− 1·23	0·60	Malda .		
16	15								N					79	·592	1·7†	5	1·74	+ 3·26	1·67	1·33	+ 0·34	1·74	2·77	− 1·03	0·61	Bogra .		
	4	12	6	1	1	6		1	N 55° E	4·9	4·7			73	·516	2·5	5	1·19	+ 3·81	3·29	0·67	+ 2·62	3·37	1·59	+ 1·78	1·40	Dinajpur .	North Bengal .	12
9		9	10		1	1	1		N 72° E	4·0	4·2			78	·556	2·4†	5	1·68	+ 3·32	4·91	1·16	+ 3·75	4·91	2·17	+ 2·74	2·59	Rangpur .		
	6	11	6	1			1	6	N 28° E	1·8	2·3			85	·572	0·8	5	2·10	+ 2·90	3·23	1·23	+ 2·00	3·82	2·22	+ 1·60	1·23	Jalpaiguri .		
7	1	5	17	1					N 79° E	2·4	2·5			76	·544	2·0	4	2·41	+ 1·59	4·92	1·66	+ 3·26	4·92	2·59	+ 2·33	2·53	Cooch Behar		
7		10	1	8		2	1	2	N 84° E	5·1	4·5	3·4	+32	67	·491	1·5	5	0·83	+ 4·17	2·49	0·44	+ 2·05	2·49	1·57	+ 0·92	1·03	Purnea .	North Bihar .	17
7					9	15			S 29° W	5·8				78	·725	2·2	3	2·87	+ 0·13	2·44	1·82	+ 0·62	2·44	3·47	− 1·03	1·28	Balasore .	Orissa.	14
2	1				6	16	6		S 47° W	11·3	10·8	10·9	− 1	86	·850	3·5	1	1·48	− 0·48	0·52	1·15	− 0·63	0·55	3·25	− 2·70	0·36	False Point.		
10			1		8	10	2		S 28° W	3·1		3·5	−11	80	·756	3·1	0	1·77	− 1·77	0·10	1·23	− 1·13	0·80	2·12	− 1·32	0·07	Cuttack.		
5						25	1		S 47° W	12·5	11·8			88	·697	1·6	0	1·05	− 1·05	0·01	0·65	− 0·64	0·17	2·55	− 2·38	0·01	Puri.		
																				0·55	0·51	+0·03					V.—Gangetic Plain and Chota Nagpur.		
3	2		1	1	6	7	7	4	S 62° W	8·4	7·5	7·4	+ 1	46	·373	1·2	3	1·81	+ 1·19	0·75	0·80	− 0·05	1·53	2·24	− 0·71	0·34	Hazaribagh.	Chota Nagpur.	15
4			2	2	5	6	4	8	S 66° W	5·6	6·6			48	·396	1·1	3	2·58	+ 0·42	1·43	1·37	+ 0·06	2·36	3·11	− 0·75	0·64	Ranchi.		
25	1		1	4					S 63° E	3·3	3·9			58	·441	0·4	0	1·67	− 1·67	0·04	0·63	− 0·59	0·95	2·21	− 1·26	0·04	Daltonganj.		
25		2		2			1	1	N 45° E	1·3	1·5			52	·458	1·0	3	2·17	+ 0·83	1·64	1·01	+ 0·63	2·07	2·65	− 0·58	0·70	Purulia.		
14		2	1	1	1	6	6		S 54° W	2·0	1·7			61	·552	0·8	0	2·19	− 2·19	0·06	1·05	− 0·99	0·24	2·55	− 2·31	0·06	Chaibasa.		
5		4	1	2	5	5	4	5	S 56° W	5·4	4·9	3·3	+48	61	·539	1·7	0	1·03	−1·03	0	0·55	− 0·55	0·64	1·94	− 1·30	0	Gaya .	South Bihar.	16
1		1	5	1	9	11	3		S 13° W	6·5	5·8			46	·390	1·1‡	1	1·00	0	0·18	0·53	− 0·35	1·52	1·96	− 0·44	0·13	Dehri.		
1		5	9	2	1	7	5	1	S 45° E	4·8	5·7	3·4	+68	57	·505	1·2	1	0·74	+ 0·26	0·21	0·39	− 0·15	0·34	1·65	− 1·31	0·24	Patna.		
16	2	5	1				2	5	N 6° W	3·6	3·7			57	·478	0·9	1	0·81	+ 0·19	0·37	0·47	− 0·10	0·39	2·09	− 1·70	0·37	Arrah.		
		1	11	2	3	3	10	1	S 3° E	8·9	8·1			47	·399	1·2	0	0·87	− 0·87	0	0·28	− 0·28	0·09	1·78	− 1·69	0	Buxar.		
5	2	5	5	4	2	4	3	1	S 79° E	5·4	5·0			56	·483	1·3	2	0·84	+ 1·16	0·61	0·44	+ 0·17	0·61	1·74	− 1·13	0·26	Bhagalpur .	North Bihar.	17
6	1	1	9	7		3	3	1	S 61° E	3·2		4·5	−29	69	·516	0·9	4	0·83	+ 3·17	2·23	0·46	+ 1·7	2·23	1·66	+ 0·57	1·14	Darbhanga.		
3	1	3	10	6	1	4	2	1	S 70° E	5·3				63	·488	0·6	3	0·97	+ 2·03	1·78	0·43	+ 1·35	1·78	1·76	+ 0·02	0·86	Muzaffarpur		
	1	7	10	3		2	4	4	N 61° E	5·0	4·8			68	·529	0·6	2	0·77	+ 1·23	2·06	0·49	+ 1·57	2·06	1·59	+ 0·47	1·06	Motihari.		
5	2	12	3		1	5	3		N 40° E	3·3	2·9			57	·461	0·8	2	0·71	+ 1·29	0·45	0·38	+ 0·07	0·52	1·70	− 1·18	0·30	Chapra.		
12		2	4	1		11	1		S 27° W	3·2	3·6	4·8	−25	55	·452	0·9	0	0·80	− 0·80	0	0·25	− 0·25	0·54	1·59	− 1·05	0	Benares .	United Provinces (East).	18
5	1	2	6	3	2	6	4	2	S 1° W	5·2	5·9	4·6	+28	47	·408	1·4	0	0·60	− 0·60	0	0·26	− 0·26	0·64	1·73	− 1·09	0	Allahabad.		
5	7	8	2		1	1	2	5	N 4° E	2·3		3·6	−36	59	·460	1·3	1	0·70	+ 0·30	0·18	0·33	− 0·15	0·24	1·72	− 1·48	0·15	Gorakhpur	United Provinces (East Sub-Montane).	23
6	2		6	2	2		13		S 76° W	2·5	2·7	4·0	−33	46	·364	2·5	0	0·90	− 0·90	0	0·33	− 0·33	0·06	2·11	− 2·05	0	Lucknow .	South Oudh.	19
2	1	1	12	1			3	11	N 18° E	3·2	3·0			58	·456	1·9	0	1·00	− 1·00	0	0·57	− 0·57	0·24	2·84	− 2·60	0	Bahraich .	North Oudh.	20
13	2	2	2	2	1	3	4	2	N 84° W	3·0				42	·334	0·7	0	0·70	− 0·70	0	0·26	− 0·26	0·15	1·59	− 1·44	0	Cawnpore .	United Provinces (Central).	21
8	2		1	1	1		16	2	N 83° W	1·9	1·9			39	·305	3·9	0	0·50	−0·50	0	0·04	− 0·04	0·80	2·07	− 1·27	0	Mainpuri.		

† Mean of 29 days.

‡ Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas.				**−·019**								87·6	+3·6	59·0	+2·3	73·3	+3·0	28·6					46·0
24	United Provinces (West Sub-montane).	Bareilly		29·290	−·022	29·841	29·404	16th	29·166	19th	·238	68·5	91·2	+3·7	61·3	+2·3	76·3	+3·0	29·9	100·4	28th	55·2	11th	45·2
		Dehra Dun	2,233	27·637	−·014	29·872	27·764	1st	27·545	20th	·219	64·0	83·9	+4·2	57·8	+2·8	70·9	+3·5	26·1	92·0	31st	52·0	3rd	40·0
		Roorkee	899	28·963	−·020	29·857	29·067	1st	28·854	19th	·213	65·3	89·6	+4·2	57·9	+1·8	73·8	+3·0	31·7	98·2	28th	49·8	4th	43·4
22	United Provinces West.	Meerut	738	29·116	−·034	29·845	29·209	1st & 16th,	29·004	19th	·205	67·1	90·4	+3·8	59·3	+1·6	74·9	+2·7	31·1	98·6	27th	48·3	22nd	50·3
26	South-East Punjab.	Delhi	718	29·150	−·030	29·853	29·231	16th	29·010	19th	·221	69·3	89·8	+2·4	64·9	+2·7	77·4	+2·6	24·9	96·7	27th & 28th.	56·1	22nd	40·6
28	Central Punjab.	Lahore	702	29·181	−·016	29·882	29·306	27th	29·000	18th	·306	64·7	86·6	P	57·7	+3·5	72·2	P	28·9	95·4	15th	46·0	21st	49·4
27	South Punjab	Sirsa	662	29·200	P	29·852	29·304	28th	29·052	18th	·252	68·7	91·5	+2·9	60·1	+2·9	75·8	+2·9	31·4	98·3	16th	50·6	21st	47·7
		Patiala	818	29·051		29·862	29·169	26th	28·900	18th	·269	68·5	87·3		59·4		73·4		27·9	94·0	16th	51·9	21st & 22nd.	42·1
29	Punjab Sub-montane.	Ludhiana	812	29·059	−·016	29·871	29·154	1st	28·887	18th	·267	65·3	87·0	+2·6	60·5	+3·0	73·8	+2·8	26·5	94·6	16th	50·2	21st	44·4
		Sialkot	830	29·052	−·009	29·888	29·194	27th	28·880	18th	·314	64·3	85·4	+3·7	59·2	+3·6	72·3	+3·7	26·2	92·6	31st	45·1	20th	47·5
		Umballa	892	28·965	−·016	29·852	29·059	1st	28·833	19th	·226	67·8	89·1	+5·2	58·1	+1·0	73·6	+3·1	31·0	96·0	6th & 31st	49·5	22nd	46·5
31	North Punjab	Rawalpindi	1,674	28·211	−·014	29·923	28·347	26th	27·986	18th	·361	61·1	79·8	+3·3	51·9	+1·2	65·9	+2·3	27·9	89·9	14th	40·0	20th	49·9
	VII.—North-West Frontier, Indus Valley and North-West Rajputana.				**−·028**								91·4	+3·9	63·1	+3·5	77·2	+3·8	28·3					45·5
31	North Punjab	Peshawar	1,110	28·817	−·028	29·957	28·951	28th	28·537	18th	·414	62·2	79·0	+2·9	53·0	+1·1	66·0	+2·0	26·0	88·1	14th & 31st	37·9	20th	50·2
32	West Punjab	Khushab	612	29·299	?	29·907	29·413	26th	29·095	18th	·318	67·3	86·4	P	58·6	+1·8	72·5	P	27·8	94·3	15th	49·5	20th	44·8
		Montgomery	558	29·333	−·012	29·879	29·450	28th	29·149	18th	·301	68·3	88·4	+2·7	59·6	+3·7	74·0	+3·2	28·8	97·0	15th	46·5	21st	50·5
		D. I. Khan	550	29·325	−·032	29·888	29·455	28th	29·137	18th	·318	65·1	86·9	+3·4	57·5	+2·0	72·2	+2·7	29·4	93·8	15th & 31st.	47·6	20th	46·2
		Mooltan	420	29·478	−·030	29·884	29·629	28th	29·251	18th	·378	66·3	89·8	+3·3	62·0	+3·6	75·9	+3·5	27·8	98·3	31st	55·9	9th	42·4
47	Sind	Jacobabad	186	29·705	−·035	29·858	29·836	28th	29·547	18th	·289	71·7	96·7	+5·6	65·5	+5·9	81·1	+5·8	31·2	104·9	31st	55·0	12th	49·9
		Hyderabad	96	29·811	−·036	29·863	29·933	28th	29·679	18th	·254	74·7	98·5	+5·4	67·1	+2·9	88·8	+4·2	31·4	103·6	25th & 30th.	59·0	12th	44·6
		Kurrachee	30	29·909	−·027	29·891	30·017	28th	29·799	18th	·218	75·7	89·3	+3·2	70·0	+3·9	79·7	+3·6	19·3	96·4	28th & 25th.	61·2	12th	35·2
51	West Rajputana	Bikaner	771	29·105	−·027	29·862	29·226	28th	28·926	18th	·300	72·5	93·4	+4·1	66·9	+2·2	80·2	+3·2	26·5	103·1	26th	60·6	3rd & 21st,	42·5
		Pachpadra	380	29·532	−·023	29·880	29·619	9th	29·428	19th	·191	73·4	99·5	+4·9	64·9	+6·6	82·3	+5·8	34·6	106·5	26th	56·4	1st	50·1
		Jodhpur	782	29·118		29·895	29·225	28th	28·991	18th	·234	75·2	97·4		68·5		83·0		28·9	103·7	26th	59·7	1st	44·0
	VIII.—East Rajputana, Central India and Gujarat.				**−·023**								96·2	+4·5	67·3	+3·7	81·8	+4·1	28·9					42·7
50	East Rajputana	Jaipur	1,431	28·476	−·018	29·888	28·564	28th	28·332	19th	·232	74·5	95·1	+5·4	65·2	+4·4	80·2	+4·9	29·9	102·2	27th	57·5	10th	44·7
		Kotah	819	29·065		29·891	29·137	28th	28·913	19th	·224	79·7	97·7		70·6		84·2		27·1	104·0	27th	62·0	1st	42·0
		Sambhar	1,254	28·647	−·012	29·897	28·743	28th	28·493	19th	·270	69·4	94·4	+5·7	62·2	P	78·3	P	32·2	101·5	27th	55·9	1st, 10th & 11th,	45·6
		Ajmer	1,611	28·296	−·032	29·900	28·387	28th	28·145	19th	·242	72·1	94·8	+5·7	66·0	+6·3	80·4	+6·0	28·8	100·9	26th & 31st.	55·7	1st	45·2
		Udaipur	1,925	28·004		29·901	28·080	28th	27·885	19th	·195	75·7	94·3		65·1		79·7		29·2	99·5	27th	56·7	14th	42·8
		Deesa	466	29·448	−·032	29·874	29·517	27th	29·329	21st	·188	73·3	102·0	+5·9	67·9	+4·1	85·0	+5·0	34·1	108·1	26th & 31st.	61·6	1st	46·5
46	Kathiawar and Cutch.	Bhuj	395	29·539	−·015	29·893	29·606	27th	29·444	18th	·162	77·0	99·2	+5·3	67·8	+2·4	83·5	+3·9	31·4	106·3	26th	62·9	1st	43·4
		Jamnagar	61	29·883		29·890	29·945	1st	29·794	21st	·151	74·8	95·6		66·6		81·1		29·0	102·1	26th & 28th.	63·2	5 days	38·9
		Rajkot	429	29·504	−·024	29·893	29·556	1st	29·419	21st	·137	75·7	99·7	+4·1	64·9	+2·5	82·3	+3·3	34·8	104·9	25th & 29th	57·9	1st	47·0
		Veraval	8	29·925	−·010	29·885	29·978	1st	29·853	21st	·125	75·1	88·6	+2·3	68·3	+3·4	78·5	+2·9	20·3	104·2	27th	61·8	1st	42·4
		Dwarka	37	29·921		29·904	29·976	1st	29·828	21st	·148	77·4	82·7		73·5		78·1		9·2	86·4	30th	70·7	1st & 25th.	15·7
		Bhavnagar Para	55	29·893	−·034	29·895	29·950	1st	29·791	21st	·159	79·5	100·9	P	70·2	+3·4	85·6	P	30·7	106·7	27th & 28th.	62·3	13th	44·4
49	Central India	Nowgong	757	29·131	−·035	29·862	29·213	1st	28·997	19th	·216	72·8	95·1	+2·7	64·0	+3·2	79·6	+3·0	31·1	104·0	28th	57·5	1st	46·5
		Indore	1,823	28·109	−·002	29·889	28·169	16th	27·998	21st	·171	77·9	96·9	+4·4	63·6	+3·2	80·3	+3·8	33·3	102·3	28th	56·1	2nd	46·2
		Neemuch	1,630	28·293	−·012	29·901	28·365	26th	28·185	18th & 21st.	·180	74·8	96·1	+4·7	64·4	+2·9	80·3	+3·8	31·7	105·5	25th	58·1	2nd	47·4
45	Gujarat	Surat	39	29·904	−·028	29·886	29·950	16th	29·828	21st	·122	79·6	101·8	+5·2	70·3	+4·3	86·1	+4·8	31·5	110·1	26th	62·5	1st	47·6
		Ahmedabad*	163	29·762	−·028	29·878	29·823	16th & 27th.	29·650	21st	·173	79·5	102·8	+5·6	71·4	+3·5	87·1	+4·6	31·4	109·3	26th	66·1	12th	43·2

* Observations of 30 days.

I—*continued.*

in India, Burma, etc., in March, 1902—continued.

WIND DIRECTION. Number of Winds from									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.		Mean cloud amount.	RAINFALL.								Heaviest rainfall during month.	STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st December 1901 to 31st March 1902.	Normal rainfall for period 1st December to 31st March.	Variation from normal of period 1st December to 31st March.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				0·37	0·79	−0·42					VI—Upper Sub-Himalayas.		
14		2	4	1			6	4	N 38° W	1·9	1·8	4·3	−58	51	·360	2·8	0	1·82	−1·82	0·05	0·76	−0·71	0·71	2·88	−2·17	0·05	Bareilly	UNITED PROVINCES (WEST SUB-MONTANE).	24
14	2		2	1	1	1	7	3	N 76° W	2·2		2·3	− 4	52	·311	4·2	2	2·60	−0·60	0·41	0·94	−0·53	1·15	6·33	−5·18	0·20	Dehra Dun.		
17		1	1	1	2			9	N 42° W	3·9		2·9	+34	48	·303	2·6	1	1·90	−0·90	0·14	0·69	−0·55	0·55	4·30	−3·75	0·11	Roorkee.		
15		2		1		1	7	5	N 69° W	2·1	2·1	2·7	−22	46	·305	2·4	0	1·40	−1·40	0·04	0·63	−0·59	0·18	3·36	−3·18	0·04	Meerut	UNITED PROVINCES WEST.	22
2	2	3	1	2	1	3	2	15	N 45° W	5·5	5·0	3·9	+28	40	·284	1·2	1	1·50	−0·50	0·12	0·50	−0·38	0·20	2·97	−2·77	0·12	Delhi	SOUTH-EAST PUNJAB.	26
9	9	1	3	3			1	5	N 3° E	3·1	3·1	3·1	0	55	·341	3·4	2	1·70	+0·30	0·77	0·65	+0·12	0·80	3·25	−2·45	0·50	Lahore	CENTRAL PUNJAB	28
2	1	11	1	7				9	N 35° E	6·0	5·5	3·8	+45	42	·296	0·3	0	1·10	−1·10	0	0·32	−0·32	0·22	1·80	−1·58	0	Sirsa	SOUTH PUNJAB.	27
3	5	4	3	5	2		2	7	N 16° E	5·8	5·9			56	·387	3·5	2			0·30			0·65			0·19	Patiala.		
8	1	6	2	2		1	3	8	N 11° W	3·5	3·1	1·8	+72	51	·321	3·1	2	1·70	+0·30	0·30	0·79	−0·49	0·66	4·71	−4·05	0·12	Ludhiana	PUNJAB (SUB-MONTANE).	29
5	9	4	5	1			3	4	N 11° E	2·7		1·9	+42	60	·359	2·7	3	2·90	+0·10	0·83	1·14	−0·31	0·92	5·97	−5·05	0·33	Sialkot.		
18			1	6	1			5	S 45° E	6·9				54	·361	3·1	2	1·40	+0·60	0·42	0·37	+0·05	0·80	5·22	−4·42	0·27	Umballa.		
8	4	5	1	3	1	2	2	5	N 3° W	4·2	3·9	2·6	+50	55	·298	3·2	5	4·20	+0·80	1·00	1·89	−0·89	1·01	7·61	−6·60	0·36	Rawalpindi.	NORTH PUNJAB.	
																				0·17	0·51	−0·34					VII—North-West Frontier, Indus Valley and North-West Rajputana.		31
27					2	2			S 22° W	2·5	2·7	3·7	−27	64	·364	4·2	3	3·90	−0·90	0·74	2·04	−1·30	0·90	5·19	−4·29	0·39	Peshawar	NORTH PUNJAB.	31
8	7	7	1	1	4	1	2		N 32 E	6·3	7·3			35	·230	3·4	2	1·70	+0·30	0·32	1·13	−0·81	0·32	3·18	−2·86	0·22	Khushab	WEST PUNJAB.	32
4	10	7	2	3	2		1	2	N 28° E	6·9	5·9			40	·273	3·0	1	1·20	−0·20	0·33	0·35	−0·02	0·33	2·28	−1·95	0·16	Montgomery		
19	6	3					3		N	2·2	2·3	2·1	+10	64	·402	3·3	0	2·50	−2·50	0·12	0·89	−0·77	0·12	2·33	−2·21	0·08	D. I. Khan.		
16	7	1		3	1	2		1	N 10° E	1·4	1·7	2·1	−19	55	·358	3·0	1	1·20	−0·20	0·33	0·39	−0·06	0·33	1·46	−1·13	0·16	Mooltan.		
8	4	4	5	9	1				S 88° E	3·5	3·6	3·9	− 8	46	·362	3·1	0	0·70	−0·70	0·08	0·15	−0·07	0·08	0·85	−0·77	0·05	Jacobabad	SIND.	47
2	10				1	17	1		S 76° W	7·0	7·3	8·3	−12	53	·444	1·1	0	0·30	−0·30	0	0·16	−0·16	0·07	0·67	−0·60	0	Hyderabad.		
4	2	1	2		1	10	9	2	S 75° W	8·0	10·0	11·8	−15	79	·701	2·2	0	0·50	−0·50	0	0·19	−0·19	0·01	1·29	−1·28	0	Kurrachee.		
2	2	3	11	2	3	2	3	3	N 87° E	7·0		4·3		49	·399	2·6	0	0·50	−0·50	0	0·19	−0·19	0	1·01	−1·01	0	Bikaner	WEST RAJPUTANA	51
	6	4	9	2	3	2	4	1	N 60° E	7·6	6·8	4·1	+66	49	·418	0	0	0·30	−0·30	0	0·11	−0·11	0·07	0·69	−0·62	0	Pachpadra.		
11		10	3	1		3	2	1	N 45° E	4·5	4·1			27	·240	2·5	0	0·20	−0·20	0	0·01	−0·01	0·05	0·50	−0·45	0	Jodhpur.		
																				0	0·12	−0·12					VIII—East Rajputana, Central India and Gujarat		
11	6	4			1	1	2	6	N 20° W	3·7		5·7	−35	37	·323	2·3	0	0·70	−0·70	0	0·34	−0·34	0	1·30	−1·30	0	Jaipur	EAST RAJPUTAN	50
15	2	1	3			3	1	6	N 37° W	3·1	3·7			30	·294	0·3	0	0·40	−0·40	0	0·07	−0·07	0·46	0·76	− 0·30	0	Kotah.		
22	3	3		1	1		1		N 29° E	5·1		6·2	−18	33	·238	2·1	0	0·80	−0·80	0·02	0·28	−0·26	0·02	1·20	−1·18	0·02	Sambhar.		
13		4		4		5		5	W	4·4		3·6	+22	40	·314	2·6	0	0·60	−0·60	0	0·16	−0·16	0·04	1·11	− 1·07	0	Ajmer.		
26	2					1	2		N 64° W	2·4	2·4			51	·462	0·8	0	0·30	−0·30	0			0·04			0	Udaipur.		
	8	12	1		3	3	2	2	N 14° E	6·4		8·9	−28	34	·322	1·3	0	0·18	−0·18	0	0·05	−0·05	0·07	0·33	−0·26	0	Deesa.		
	1				1	6	13	10	N 83° W	9·5		8·3	+14	64	·582	0·8	0	0·10	−0·10	0	0·06	−0·06	0·11	0·29	− 0·18	0	Bhuj	KATHIAWAR AND CUTCH.	46
1	1				3	13	12	1	S 65° W	10·4	12·4			86	·738	0·9	0			0			0·16			0	Jamnagar.		
	4	1		2		3	9	12	N 61° W	8·1	8·0	8·1	− 1	64	·560	1·6	0	0	0	0	0	0	0·01	0·17	−0·16		Rajkot.		
	16	7	1				1	6	N 2° E	10·6		6·6	+61	71	·608	0·7	0	0	0	0	0	0	0	0·10	−0·10	0	Veraval.		
	4	1		1		1	8	16	N 52° W	12·5				83	·785	2·6	0			0			0·01			0	Dwarka.		
	3	1			1	2	10	4	N 61° W	8·3	7·8			38	·372	0·4	0	0·10	−0·10	0	0·08	−0·08	0	0·29	− 0·29	0	Bhavnagar Para.		
5	3		3	1	2	5	10	2	N 81° W	2·3	2·3	2·3	0	41	·329	1·7	0	0·70	−0·70	0	0·22	−0·22	1·23	1·96	− 0·73	0	Nowgong	CENTRAL INDIA.	49
12	5	3		1		1	7	2	N 42° W	4·4		3·7	+19	39	·379	1·0	0	0·10	−0·10	0	0·04	−0·04	0·26	0·55	−0·29	0	Indore.		
8	4	8	4	1	1		3	2	N 33° E	5·8	5·2	9·1	−43	36	·315	0·8	0	0·10	−0·10	0	0·04	−0·04	0·54	0·70	−0·16	0	Neemuch.		
6	6	4	1	2	7		3	2	N 26° E	5·2	4·9	6·5	−25	54	·544	0	0	0	0	0	0	0	0·50	0·14	+0·36	0	Surat	GUJARAT.	45
	5	7	3	1		2	1	11	N 6° W	2·1	3·4			38	·382	0·5	0	0	0	0	0·06	−0·06	0·02	0·30	− 0·28	0	Ahmedabad		

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
22	United Provinces West.	Agra	555	29·331	−·039	29·860	29·414	1st	29·202	18th & 19th	·212	72·8	94·0	+2·9	66·4	+3·7	80·2	+3·3	27·6	103·0	28th	60·4	4th & 9th.	42·6
21	United Provinces Central.	Jhansi	858	29·046	−·031	29·875	29·124	1st	28·904	19th	·220	76·0	96·8	+3·7	71·0	+4·7	83·9	+4·2	25·8	104·8	27th & 28th.	65·1	1st	39·7
	IX.—Deccan				−·013								99·6	+2·9	68·4	+1·9	84·0	+2·4	31·1					42·2
38	Bombay Deccan	Belgaum	2,539	27·405	−·011	29·868	27·456	27th	27·347	21st	·109	75·7	94·8	+0·9	64·2	0	79·5	+0·5	30·6	98·3	25th	60·9	5th	37·4
		Sholapur	1,590	28·338	−·012	29·874	28·403	7th	28·266	21st	·137	81·0	101·7	+1·3	71·1	+1·8	86·4	+1·6	30·6	105·7	20th	65·1	13th	40·6
		Poona	1,840	28·101?	−·018	29·911?	28·165	7th	28·045	21st	·120	72·0	100·8	+3·1	63·9	0	82·4	+1·6	36·9	105·0	30th	57·4	13th	47·6
		Bijapur	1,946	27·995	+·006	29·874	28·074	7th	27·932	21st	·142	80·6	99·4	?	72·1	+1·5	85·8	?	27·3	103·4	25th	66·3	12th	37·1
40	Khandesh	Malegaon	1,430	28·510?	−·010	29·901?	28·576	16th	28·424	21st	·152	78·3	102·0	+4·7	65·0	+1·4	83·5	+3·1	37·0	106·8	28th	59·1	13th & 14th.	47·7
		Ahmednagar	2,152	27·809	?	29·898	27·864	16th	27·750	20th	·114	78·6	98·1	+4·3	65·9	?	81·6	?	33·1	102·4	30th & 31st.	56·0	12th & 15th.	46·4
41	Berar	Akola	930	28·986	−·014	29·873	29·052	16th	28·899	21st	·153	78·6	102·7	+3·5	67·0	+1·0	84·9	+2·3	35·7	107·7	28th & 29th.	59·8	1st	47·9
		Amraoti	1,215	28·703	−·004	29·873	28·763	16th	28·621	21st	·142	81·2	101·2	+3·1	72·6	+3·4	86·9	+3·3	28·6	105·3	28th	61·5	3rd	40·8
2	Central Provinces, West.	Khandwa	1,044	28·873	−·017	29·885	28·929	16th	28·775	21st	·154	77·4	102·0	+4·4	67·9	+3·0	85·0	+3·7	34·1	107·2	27th & 28th.	60 6	1st, 3rd & 14th.	46·6
		Hoshangabad	1,006	28·915	−·017	29·894	28·986	26th	28·804	21st	·182	76·3	99·2	+3·5	68·2	+3·6	83·7	+3·6	31·0	105·9	28th	61·2	13th	44·7
		Nagpur	1,025	28·886	−·010	29·876	28·950	26th	28·788	21st	·162	77·6	101·5	+3·2	69·8	+2·0	85·7	+2·6	31·7	106·1	29th	64·1	15th	42·0
3	Central Provinces, Central.	Chanda	634	29·294	?	29·879	29·363	26th	29·191	21st	·172	79·1	102·6	+2·9	66·5	?	84·6	?	36·1	107·2	30th & 31st.	60·5	16th	46·7
		Seoni	2,033	27·892	−·010	29·876	27·975	26th	27·791	21st	·184	76·3	97·0	+3·8	65·2	+1·7	81·1	+2·8	31·8	101·3	28th	60·0	4 days	41·3
		Jubbulpore	1,327	28·564	−·031	29·869	28·634	26th	28·461	21st	·173	73·4	97·0	?	62·8	+2·0	79·9	?	34·2	103·5	28th	56·4	1st & 3rd.	47·1
		Saugor	1,807	28·110	−·008	29·877	28·179	26th	28·009	19th	·170	77·6	95·2	+3·1	70·4	+5·9	82·8	+4·5	24·8	101·9	28th	63·1	13th	38·8
49	Central India	Sutna	1,040	28·841	−·035	29·858	28·933	1st	28·700	19th	·233	74·6	95·1	+3·8	65·8	?	80·5	?	29·3	103·6	28th	59·2	1st	44·4
44	Central Provinces, East.	Raipur	970	28·533	−·017	29·861	29·012	26th	28·799	22nd	·213	78·9	99·9	+3·4	70·1	+1·5	85·0	+2·5	29·8	104·5	28th & 29th.	63·4	1st	41·1
		Sambalpur	486	29·414	−·028	29·856	29·500	26th	29·310	22nd	·190	77·2	100·2	+3·5	68·8	+1·5	84·6	+2·5	31·4	104·6	21st, 28th & 29th.	62·2	2nd	42·4
39	Hyderabad (North).	Aurangabad	1,905	28·046		29·881	28·111	7th	27·966	21st	·145	82·0	99·0		67·8		83·4		31·2	105·1	20th	61·2	15th	43·9
		Indur										80·0	100·3		60·7		80·6		39·6	104·7	31st	57·1	2nd	47·6
		Bidar	2,165?	27·789		29·875	27·858	22nd	27·742	13th	·116	81·8	97·9		72·5		85·3		25·4	101·9	23rd	67·2	9th	34·7
53	Hyderabad (South).	Gulbarga	1,503	28·424	−·005	29·871	28·518	7th	28·338	21st	·170	81·4	101·3	+2·2	71·9	+1·1	86·6	+1·7	29·4	105·0	24th	67·1	10th	37·9
		Raichur	1,326	28·594	+·004	29·869	29·680	7th	28·502	21st	·178	81·7	100·1	+1·3	75·5	+1·5	87·8	+1·4	24·6	105·0	21st & 24th	69·1	2nd	35·9
		Hyderabad (Deccan).	1,690	28·246	?	29·887	28·329	7th	28·174	21st	·155	78·2	99·4	+1·5	70·7	+1·1	85·1	+1·3	28·7	103·9	20th	64·2	8th	39·7
		Secunderabad	1,787	28·144	?	29·884	28·226	7th	28·072	21st	·154	76·7	100·3	+2·4	70·9	+1·3	85·6	+1·9	29·4	105·2	20th	65·1	8th & 9th	40·1
		Hanumkonda	871	29·050		29·875	29·132	7th	28·965	22nd	·167	77·7	99·5		72·6		86·1		26·9	104·9	19th	67·3	9th	37·6
	X.—West Coast				−·006								88·9	+1·0	76·2	+1·3	82·6	+1·2	12·7					20·9
37	Konkan	Bombay	37	29·911	−·020	29·888	29·951	12th	29·858	21st	·093	79·0	88·0	+2·3	75·7	+2·3	81·9	+2·3	12·3	92·0	26th	71·5	1st	20·5
		Ratnagiri	110	29·840	?	29·888	29·884	27th	29·793	21st	·091	79·5	88·3	+0·5	74·7	+2·3	81·5	+1·4	13·6	90·4	28th & 30th.	69·9	1st	20·5
		Mormugao	60	29·894	+·005	29·889	29·935	7th	29·829	22nd	·106	80·9	89·0	+2·1	77·0	+1·5	83·0	+1·8	12·0	92·5	9th	70·9	22nd	21·6
		Goa	199	Barometer out of order								80·0	85·5	?	77·1	+2·9	81·3	?	8·4	90·0	24th	73·0	14th	17·0
		Karwar	44	29·911	−·004	29·887	29·951	1st	29·835	22nd	·116	76·4	88·4	+0·6	74·1	+1·1	81·3	+0·9	14·3	92·8	9th	69·0	14th	23·8
33	Malabar	Cochin	10	29·939	−·012	29·877	29·992	16th	29·885	22nd	·107	81·4	93·6	?	77·4	+0·4	85·5	?	16·2	96·5	8th & 10th.	73·7	14th & 29th.	22·8
		Calicut	27	29·920	−·015	29·876	29·958	16th	29·875	22nd	·083	82·0	90·4	+0·1	76·1	0	83·3	+0·1	14·3	92·8	9th & 29th.	72·0	1st	20·8
		Mangalore	65	29·887	−·014	29·884	29·927	1st	29·846	8th & 22nd	·081	81·6	89·7	+0·3	76·8	+0·8	83·3	+0·6	12·9	96·2	9th	72·4	8th & 29th.	23·8
		Trivandrum	198	29·752	+·015	29·881	29·815	16th	29·702	22nd	·113	80·0	87·4	+0·3	77·3	?	82·4	?	10·1	90·0	8th	73·0	3rd & 4th.	17·0
	XI.—South India				−·004								94·2	+0·6	72·1	+0·6	83·1	+0·6	22·1					33·9
57	Madras (South).	Pamban	37	29·928	+·012	29·892	29·976	1st	29·888	2nd	·088	82·1	89·1	+0·4	75·3	−0·8	82·3	−0·2	13·8	92·3	25th	70·2	7th	22·1
		Tinnevelly	168	29·792	+·008	29·890	29·850	1st	29·713	21st	·137	80·3	95·5	−1·0	75·9	+0·3	85·7	−0·4	19·6	100·8	23rd	68·9	3rd	31·9
		Madura	447	29·509	−·009	29·895	29·567	16th	29·444	21st	·123	80·9	95·4	−1·3	73·3	+0·5	84·4	−0·4	22·1	100·5	23rd	65·6	3rd	34·9
		Periyakulam	945	29·011			29·065	16th	28·948	22nd	·117	77·3	95·6		68·2		81·4		27·4	100·9	23rd	57·2	3rd	43·7

I—*continued.*

in India, Burma, etc., in March, 1902—continued.

WIND DIRECTION. Number of Winds from										Wind Resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.								Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.			Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st December 1901 to 31st March 1902.	Normal rainfall for period, 1st December to 31st March.	Variation from normal of period, 1st December to 31st March.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
11		2				12		6	S 75° W	3·5	4·0	4·5	−11	45	·368	1·9	0	0·80	−0·80	0	0·26	− 0·26	0·22	1·37	− 1·15	0	Agra	United Provinces West.	22
5		1		1		14	2	8	S 75° W	4·5	5·0	3·4	+47	48	·428	0·7	0	0·50	−0·50	0	0·26	− 0·26	1·92	1·53	+ 0·39	0	Jhansi	United Provinces Central.	21
																				0·01	0·44	−0·43					IX.—Deccan.		
7	4	3	2	4	2	2	5	2	N 34° E	10·8		11·6	− 7	49	·437	0	1	0·90	+0·10	0·19	0·43	− 0·24	0·21	0·62	− 0·41	0·11	Belgaum	Bombay Deccan.	38
	4	2	1	11	1	2	2	8	N 50° E	8·6	10·4	7·4	+41	30	·324	0·7	0	0·60	−0·60	0	0·26	− 0·26	0	0·79	− 0·79	0	Sholapur.		
11						11	5	4	S 73° W	8·0	9·0	8·3	+ 8	44	·346	0	0	0·30	−0·30	0	0·04	− 0·04	0·10	0·33	− 0·23	0	Poona.		
9	6	1			5	2	1	7	N 51° W					51	·536	0	1	0·70	+0·30	0·14	0·49	− 0·35	0·14	0·59	−0·45	0·14	Bijapur.		
	2				1	6	12	10	N 81° W	6·2	7·1	6·4	+ 11	29	·287	3·0	0	0·10	−0·10	0	0·04	− 0·04	0·74	0·44	+ 0·30	0	Malegaon	Khandesh.	40
7	7	4	1	1	3	1		7	N 6° W	6·8	8·3			34	·325	0	0	0·30	−0·30	0	0·32	− 0·32	0·67	1·23	− 0·56	0	Ahmednagar.		
5	2	2	2	5	3	1	4	7	N 68° W	5·1	5·0	4·4	+14	23	·216	0·1	0	0·90	−0·90	0	0·43	− 0·43	0·16	1·68	− 1·52	0	Akola	Berar.	41
	3	5	6	1	3	7	4	2	S 8° W	7·4	6·6	4·0	+65	35	·370	0·1	0	0·80	−0·80	0	0·32	− 0·32	0	1·45	− 1·45	0	Amraoti.		
12			1	2	2	1	8	5	S 87° W	6·0		4·6	+30	28	·256	0·2	0	0·30	−0·30	0	0·12	− 0·12	0·47	0·86	− 0·39	0	Khandwa	Central Provinces, West.	42
		18		3		7		3	N 45° E	3·0	3·1	2·6	+19	31	·279	0·5	0	0·40	−0·40	0	0·18	− 0·18	0·40	1·24	− 0·84	0	Hoshangabad.		
3	9	1	3	2	3		4	6	N 15° W	5·6		5·5	+ 2	25	·228	0·1	0	1·10	−1·10	0	0·48	− 0·48	0	1·77	− 1·77	0	Nagpur.		
15	2	2	5	5	1			1	S 87° E	2·3		3·2	−28	40	·401	0	0	1·40	−1·40	0	1·19	− 1·19	0	2·32	− 2·32	0	Chanda	Central Provinces, Central.	43
	8	6	5	1	2	3	4	2	N 16° E	5·0		3·4	+47	32	·289	0·5	0	1·70	−1·70	0	0·59	− 0·59	0·37	2·52	− 2·15	0	Seoni.		
1	1	3	1	8	9	3	2	3	S 12° E	2·7	2·4	3·0	−20	40	·331	0·5	0	1·20	−1·20	0	0·43	− 0·43	0·46	2·04	− 1·58	0	Jubbulpore.		
		5	2	9	4	6	3	2	S 19° E	6·0	6·8	3·2	+113	29	·280	1·4	0	0·60	−0·60	0	0·29	− 0·29	0·68	2·04	− 1·36	0	Saugor.		
3	2	1	3	1		1	9	11	N 55° W	4·4	4·7	5·5	−15	30	·257	1·4	0	1·00	−1·00	0	0·43	− 0·43	1·45	2·43	− 0·98	0	Sutna	Central India	44
9		2	2	1		12	3	2	S 54° W	5·4	5·0	4·7	+6	29	·284	0	0	1·80	−1·80	0	0·65	− 0·65	0	1·45	− 1·45	0	Raipur	Central Provinces, East.	44
	5	5	4	5	3	1	3	5	N 39° E	3·0	2·9	2·0	+45	53	·496	0·1	0	1·80	−1·80	0·04	1·07	− 1·03	0·05	2·10	− 2·05	0·04	Sambalpur.		
16	1	4	2	3			4	1	N 43° E	5·2	5·1			22	·235	0·2	0	0·50	−0·50	0	0·14	− 0·14	0·19	0·98	− 0·79	0	Aurangabad	Hyderabad (North).	39
														43	·443	0·3	0	0·80	−0·80	0	0·48	− 0·48	0	0·99	− 0·99	0	Indur		
6		6				18		1	S 48° W	10·5	9·0			42	·447	0	0	1·40	−1·40	0	0·50	− 0·50	0	1·22	− 1·22	0	Bidar.		
12	2	4	2	1	2	4	3	1	W	7·2	6·9			46	·487	0·7	0	0·30	−0·80	0	0·52	− 0·52	0	0·88	− 0·88	0	Gulbarga	Hyderabad (South).	53
6	1		2	5	9	4	2	2	S 66° W	7·7	7·3			47	·513	0·2	0	0·70	−0·70	0	0·44	− 0·44	0	0·68	− 0·68	0	Raichur.		
24	1		2	1			3		N 45° W	3·8	3·7			52	·505	0·9	0			0	0·58	− 0·58	0	0·96	− 0·96	0	Hyderabad (Deccan).		
15	1	3	5	4			1	2	N 19° W	4·1		5·0	−18	58	·531	0·8	0	1·10	−1·10	0	0·58	− 0·58	0·02	0·96	− 0·94	0	Secunderabad.		
1			3	21	6				S 41° E	9·1*	7·7			72	·659	2·1	0	0·70	−0·70	0·01			0·01			0·01	Hanumkonda.		
																				0·60	0·51	+0·09					X.—West Coast.		
1	4	6	6	8	4		1	1	S 87° E	8·6		11·5	−25	79	·791	0·9	0	0	0	0	0·02	− 0·02	0	0·20	− 0·20	0	Bombay	Konkan.	37
13	6	2		6	2	1		1	N 76° E	3·4	3·4	9·9	−66	79	·791	1·3	0	0·10	−0·10	0	0·01	− 0·01	0	0·24	− 0·24	0	Ratnagiri.		
3	5	2	8	7	2	1		3	N 86° E	7·2				81	·862	2·2	0			0	0	0	0	0·05	−0·05	0	Mormugao.		
1	2	11	12	1	4				N 76° E					81	·830	1·6	0			0	0	0	0·03	0·31	− 0·28	0	Goa.		
10		7	14						N 75° E	4·8				83	·757	0·7	0	0	0	0	0	0	0	0·18	− 0·18	0	Karwar.		
1	18	7	1					9	N 7° E	6·3				77	·830	2·6	6	2·60	+3·40	2·15	2·15	0	3·18	5·22	− 2·04	1·10	Cochin	Malabar.	33
2	8	18	2					1	N 34° E	9·5	12·0			77	·845	2·2	2	0·90	+1·10	1·96	0·58	+ 1·38	5·74	1·89	+ 3·85	1·48	Calicut.		
11		1	11	7				1	S 77° E	3·0		3·4	−12	78	·838	2·3	1	0·20	+0·80	0·36	0·07	+ 0·29	1·70	0·60	+ 1·10	0·36	Mangalore.		
7	9	7	3				1	4	N 14° E	5·5				76	·789	2·1	3	2·60	+0·40	0·97	1·78	− 0·81	4·70	5·29	− 0·59	0·44	Trivandrum.		
																				0·47	0·45	+0·02					XI.—South India.		
		10	12	7	1	1			N 89° E	6·8	7·3			78	·855	2·5	2	0·90	+1·10	0·48	0·72	− 0·24	14·63	13·09	+ 1·54	0·26	Pamban	Madras (South)	57
	10	5	1		1	1	5	8	N 23° W	4·2	4·0			79	·820	2·4	3	2·30	+0·70	2·07	1·03	+ 1·01	11·24	7·28	+ 3·96	1·16	Tinnevelly.		
11	5	8	4	2				1	N 46° E	1·0	1·0	4·1	−76	77	·821	2·0	3	1·00	+2·00	2·31	0·47	+ 2·84	6·89	3·09	+ 3·80	3·04	Madura.		
16	1	1	4	1	1	3	3	1	S 14° W	2·8	3·1			69	·653	2·5	4	2·30	+1·70	1·40	1·73	− 0·33	5·51	4·89	+ 0·62	0·61	Periyakulam.		

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to standard gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
34	Madras, (South Central).	Salem	940	29·026	P	29·910	29·084	1st	28·957	21st	·127	79·7	98·8	+0·2	71·0	+0·2	84·9	+0·2	27·8	103·7	22nd	61·4	1st & 3rd.	42·3
		Coimbatore	1,348	28·614	−·008	29·913	28·662	1st	28·550	21st	·112	77·2	96·2	−0·1	70·4	+0·6	83·3	+0·3	25·8	99·9	20th & 25th.	62·3	1st	37·6
35	Coorg	Mercara	3,781	26·277	+·011		26·311	16th	26·236	22nd	·075	65·6	84·6	0	61·4	−0·4	73·0	−0·2	23·2	89·0	25th & 28th.	59·1	3rd & 5th.	29·9
36	Mysore	Chitaldroog	2,405	27·556	0	29·867	27·603	16th	27·497	21st	·106	79·3	96·1	+1·7	71·4	+1·2	83·8	+1·5	24·7	98·7	22nd, 24th 29th.	66·9	2nd	31·8
		Bangalore	3,021	26·980	−·003	29·896	27·027	16th	26·929	21st	·098	73·6	92·0	+1·3	65·4	+0·7	78·7	+1·0	26·6	96·8	23rd	57·9	4th	38·9
		Hassan	3,091	26·920	+·007	29·909	26·958	7th	26·876	22nd	·082	74·7	91·4	+0·3	63·0	+0·9	77·2	+0·6	28·4	94·5	25th	55·2	4th	39·3
		Mysore	2,518	27·468	+·005	29·908	27·508	16th	27·410	21st	·098	74·4	94·3	+0·8	67·6	+0·4	81·0	+0·6	26·7	97·6	23rd	59·4	2nd	38·2
56	Madras, East Coast, South.	Negapatam	31	29·928	−·010	29·888	29·981	1st	29·885	21st	·096	82·2	86·9	−1·8	77·9	?	82·4	P	9·0	90·7	25th & 29th.	70·0	3rd & 4th.	20·7
		Cuddalore	12	29·944	P	29·885	30·004	16th	29·875	21st	·129	79·8	88·9	−0·4	73·2	+1·0	81·0	+0·3	15·7	92·7	24th	65·2	3rd	27·5
		Trichinopoly	255	29·710	−·009	29·901	29·760	1st	29·652	21st	·108	79·6	97·7	−0·2	73·0	+0·2	85·4	0	24·7	103·6	23rd	63·9	3rd	39·7
		Madras	22	29·933	−·019	29·886	29·990	1st, 7th & 27th.	29·860	22nd	·130	80·6	99·2	+0·2	72·7	+0·5	81·5	+0·4	17·5	94·5	19th	66·0	3rd	28·5
		Vellore	707	29·245		29·903	29·304	7th	29·173	22nd	·131	75·1	95·5*		69·8‡		82·6§		25·7	102·4	22nd	62·4	1st	40·0
55	Madras, East Coast, Central.	Nellore	71	29·877	P	29·882	29·957	7th	29·791	22nd	·166	80·4	95·7	P	73·6	+1·2	84·7	P	22·1	102·8	20th	68·6	3rd	34·2
		Masulipatam	15	29·950	P	29·899	30·033	7th	29·864	22nd	·169	80·4	92·0	+0·6	72·7	+0·4	82·4	+0·5	19·3	97·6	18th	66·2	4th	31·4
54	Madras, Central	Cuddapah	433	29·492	−·005	29·863	29·571	7th	29·408	22nd	·163	84·9	103·5	+1·8	76·0	+1·0	89·8	+1·4	27·5	108·8	23rd	65·4	5th	43·4
		Kurnool	923	28·992	−·008	29·862	29·087	7th	28·911	21st	·176	79·4	102·5	+1·6	72·5	+1·0	87·5	+1·3	30·0	106·3	21st & 24th.	64·3	5th	42·0
		Bellary	1,475	28·469	+·009	29·885	28·545	7th	28·404	21st	·141	82·4	102·3	+2·0	73·4	+1·3	87·9	+1·7	28·9	107·0	24th	65·2	5th	41·8
52	Madras, East Coast, North.	Cocanada	26	29·932	−·002	29·893	30·008	7th	29·851	22nd	·157	79·8	94·1	+2·4	74·1	+0·6	84·1	+1·5	20·0	99·1	18th	69·0	7th	30·1
		Waltair (Vizag.)	226	29·717	−·014	29·887	29·795	7th	29·635	21st	·160	78·6	87·2	P	74·1	+0·7	80·7	P	13·1	89·4	27th & 29th.	70·4	7th & 31st.	19·0
		Gopalpur	21	29·892	−·014	29·853	29·990	27th	29·796	21st	·194	77·4	86·3	−0·3	72·7	−0·5§	79·5	P	13·6	88·3	9th	66·6	4th	21·7
	XII.—Hill Stations.																							
48	Baluchistan	Pishin											71·4		37·5		54·5		33·9	80·3	14th & 15th.	26·0	8th & 19th.	54·3
		Quetta	5,502	24·666	+·013		24·770	28th	24·587	22nd	·183	53·4	71·0	+6·5	42·0	+2·1	56·4	+4·3	29·0	79·7	14th	31·8	8th	47·9
		Kalat										53·3	70·9	+6·3	29·6	−2·5	50·3	+1·9	41·3	82·5	15th	16·2	8th & 11th.	66·3
		Chaman	4,311	25·716	0		25·824	1st	25·587	17th	·237	61·0	74·8	+7·5	50·1	+6·0	62·5	+6·8	24·7	84·3	15th	34·1	19th	50·2
30	Punjab and North-West Frontier Province.	Leh	11,503	19·620	−·002		19·835	15th	19·317	19th	·518	29·2	45·0	+1·9	21·9	+0·8	33·5	+1·4	23·1	53·1	16th	14·5	5th, 6th & 7th.	38·6
		Srinagar	5,204	24·936	+·006		25·060	28th	24·634	19th	·426	41·9	60·9	+5·5	38·0	+0·9	49·5	+3·2	22·9	76·8	14th	31·1	3rd	45·7
		Sonemarg		21·836			21·941	15th	21·469	19th	·472	28·2	44·5		22·2		33·4		22·3	56·2	31st	11·1	28th	45·1
		Astor (Kashmir)	7,955	22·562			22·694	9th	22·154	19th	·540	33·2	49·0		28·5		38·8		20·5	60·5	31st	16·0	3rd	44·5
		Minimarg†		21·365			21·469	4th	21·056	18th	·413	27·8	45·1		19·3		32·2		25·8	57·4	31st	8·1	20th	49·3
		Skardu		22·890			23·058	4th	22·466	19th	·592	38·8	51·9		35·0		43·5		16·9	61·9	17th	27·1	3rd	34·8
		Dras		20·786			20·920	14th	20·368	19th	·552	17·1	36·6		9·0		22·8		27·6	46·3	27th	−6·9	28th	53·2
		Gilgit	4,890	25·187			25·359	4th	24·757	18th	·602	50·7	63·2	+1·5	45·6	+0·3	54·4	+0·9	17·6	73·3	15th	40·1	20th	33·2
		Chitral		24·377			24·500	8th	23·975	17th	·525	46·6	63·1		39·5		51·4		23·6	75·1	13th	31·0	7th & 8th.	44·1
		Killa Drosh										47·3	63·9		43·8		53·9		20·1	76·3	13th	34·8	18th	41·5
		Para Chinar	6,000	24·465			24·570	14th	24·237	18th	·333	48·3	61·2		42·1		51·7		19·1	71·1	14th	32·1	19th	39·0
		Cherat		25·726	+·012		25·839	28th	25·467	18th	·372	55·2	65·2	+3·7	50·1	+2·2	57·7	+3·0	15·1	77·3	14th	36·5	19th	40·8
		Murree	6,333	23·849	+·002		23·959	26th	23·634	19th	·325	49·5	57·9	−0·4	42·0	−1·3	50·0	−0·9	15·9	67·2	14th	26·0	19th	41·2
		Poo											48·6		32·3		40·5		16·3	59·3	31st	27·8	21st	31·5
		Simla	7,224	23·127	+·022		23·265	26th	23·014	19th	·251	49·8	58·0	+1·6	45·6	−0·4	51·8	+0·6	12·4	64·5	16th	39·0	8th	25·5
2	United Provinces	Chakrata	7,022	23·296	+·003		23·421	26th	23·210	20th & 21st,	·211	49·9	62·0	+0·3	45·9	+1·6	54·0	+1·0	16·1	71·2	31st	35·4	2nd	35·8
		Mussooree	6,705	23·572	+·018		23·700	26th	23·477	20th	·223	51·8	62·1	+1·5	48·3	+3·2	55·2	+2·4	13·8	68·3	30th & 31st.	39·0	2nd	29·3
		Ranikhet	6,069	24·114	+·007		24·236	26th & 27th.	24·033	29th	·203	55·4	67·2	+1·9	50·6	+1·5	58·9	+1·7	16·6	74·0	27th & 31st.	42·5	22nd	31·5
		Muktesar		22·865			22·984	27th	22·797	29th	·187	51·7	63·5		45·0		54·3		18·5	73·6	27th	37·9	22nd	35·7

* Mean of 30 days. ‡ Mean of 27 days. § Mean of 26 days.

I—*continued.*

in India, Burma, etc., in March, 1902—continued.

WIND DIRECTION. Number of Winds from									Wind resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.								Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st December 1901 to 31st March 1902.	Normal rainfall for period, 1st December to 31st March.	Variation from normal of period, 1st December to 31st March.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
18		3	9			1			N 82° E	4·4	4·0	5·5	−27	76	·774	1·7	2	1·20	+0·80	0·65	0·71	− 0·06	2·31	2·53	−0·22	0·44	Salem .	Madras, (South Central).	34
		9	16		1		5		N 77° E	0·8	0·7	3·3	−79	82	·782	4·9	2	1·10	+0·90	0·49	0·50	− 0·01	4·55	2·25	+ 2·30	0·30	Coimbatore.		
28	1						2		N 63° W	4·2	3·9	3·4	+15	77	·513	6·2	2	2·00	0	1·30	0·81	+ 0·49	2·27	1·48	+ 0·79	0·80	Mercara .	Coorg.	35
4	2		2	5	3	6	6	3	S 46° W	7·4	6·4			53	·530	0·6	0	0·50	−0·50	0	0·34	− 0·34	0·28	0·51	− 0·23	0	Chitaldroog.	Mysore.	36
			8	7	5	8	3		S 15° E	8·6	7·5	3·6	+108	66	·544	0·7	1	1·00	0	0·67	0·48	+ 0·19	1·61	1·19	+ 0·42	0·67	Bangalore.		
	1	4	6	7	4	3	4	2	S 45° E	3·5	3·1			59	·505	1·6	0	0·90	−0·90	0·02	0·38	− 0·36	0·66	0·62	+ 0·04	0·01	Hassan.		
2	1	3	2	2	3	9	8	1	S 54° W	7·2	7·8			72	·598	4·0	1	1·00	0	0·16	0·23	− 0·07	0·77	0·62	+ 0·15	0·11	Mysore.		
10	1	7	1	8	1			3	N 81° E	9·4	8·3	3·6	+131	77	·861	4·0	1	0·50	+0·50	0·12	0·52	− 0·40	16·52	15·26	+ 1·26	0·12	Negapatam	Madras, East Coast, South.	56
27					2	2			S 23° W	0·7	0·9			84	·861	4·8	1	0·40	+0·60	0·61	0·30	+ 0·31	10·22	10·00	+ 0·22	0·61	Cuddalore.		
23		4	3	1					N 72° E	3·7		3·8	− 3	78	·790	2·4	2	0·50	+1·50	0·75	0·41	+ 0·34	8·76	4·23	+ 4·53	0·57	Trichinopoly.		
	2	1	1	1	25	3			S 1° E	6·3		6·4	− 2	80	·840	1·8	0	0·80	−0·80	0	0·21	− 0·21	16·00	6·98	+ 9·02	0	Madras.		
28		2		1					N 63° E	4·4	4·4			77	·676	2·4	0	0·30	−0·30	0·03	0·19	− 0·16	13·44	3·69	+ 9·75	0·03	Vellore.		
	2			13	15			1	S 21° E	6·6				79	·823	1·8	0	0·30	−0·30	0	0·08	− 0·08	4·40	2·37	+ 2·03	0	Nellore .	Madras, East Coast, Central	55
9	1	2		6	10	2	1		S 14° E	6·7	6·4	6·8	− 6	88	·918	2·8	0	0·40	−0·40	0	0·12	− 0·12	0·11	1·19	− 1·08	0	Masulipatam.		
		8	9	3		6	1	4	N 71° E					58	·703	0·7	0	0·20	−0·20	0	0·04	− 0·04	1·53	1·41	+ 0·12	0	Cuddapah .	Madras, Central	54
25	3						3		N 45° W					48	·489	0·2	0	0·60	−0·60	0	0·41	− 0·41	0·04	0·62	− 0·58	0	Kurnool.		
6	1	1	2	2	6	3	5	5	S 56° W	4·8	5·1	4·6	+11	49	·544	0·9	0	0·50	−0·50	0	0·14	− 0·14	0	0·36	− 0·36	0	Bellary.		
13	2			1	1	5	6	3	S 84° W	7·2	6·0			81	·824	3·4	0	0·70	−0·70	0	0·47	− 0·47	0	1·75	− 1·75	0	Cocanada .	Madras, East Coast, North.	52
						31			S 45° W	14·2				76	751	1·7	0	0·60	−0·60	0	0·32	− 0·32	0·08	2·45	− 2·37	0	Waltair (Vizag.).		
1	4				4	15	5	2	S 62° W	18·2	17·8	11·8	+51	83	·776	0·5	0	1·00	−1·00	0·04	0·65	− 0·61	0·45	2·00	− 1·55	0·04	Gopalpur.		
																	2	5·00	−3·00	0·51	1·83	− 1·32	0·89	8·05	− 7·16	0·30	XII.—Hill Stations.		
25		1				1	3	1	N 79° W	3·1	3·2	4·8	−33	49	·205	3·0	2	4·00	−2·00	0·54	1·84	− 1·30	0·65	6·89	− 6·24	0·12	Quetta.	Baluchistan .	48
	3		4		24				S 11° E					52	·214		1	2·60	−1·60	0·14	0·83	− 0·69	0·16	3·53	− 3·37	0·14	Kalat.		
5	1		5	8	5	5	1	1	S 24° E	9·5	10·5			53	·289	5·0	0	4·70	−4·70	0·17	1·31	− 1·14	0·50	5·28	− 4·78	0·07	Chaman.		
	3	9	6	3	5	1	3	1	N 78° E	2·6				72	·119	5·6	2	1·00	+1·00	0·70	0·22	+ 0·48	0·81	1·07	− 0·26	0·49	Leh . .	Punjab and North-West Frontier Province.	30
15	1	4	1	4	2		1	3	N 74° E	4·8	5·1			89	·443	5·7	9	6·60	+2·40	4·20	3·14	+ 1·06	5·01	10·34	− 5·33	1·04	Srinagar.		
8	4	5	3	4	1	2	3	1	N 54° E	4·5	4·1			84	·134	4·1	15			14·72			20·37			3·16	Sonemarg .		
		3		2	16	9			S 7° W	7·5				67	·130	5·6	8			4·10			5·09			0·98	Astor (Kashmir).		
17		6	5	2					N 75° E	4·5	4·8			63	·100	5·2	16			15·01			22·51			3·62	Minimarg.		
18		3	1		2	3	4		S 56° W	2·37	2·77			67	·156	5·9	4	2·70	+1·30	2·02	1·20	+ 0·82	2·28	4·77	− 2·49	0·70	Skardu.		
29	1							1	N 23° W	1·0	1·0			97	·099	4·9	11	10·80	+0·20	4·05	4·39	− 0·34	6·20	13·13	− 6·93	1·02	Dras.		
23			2			3	3		S 56° W	3·0	2·7			46	·167	6·7	2	1·40	+0·60	1·23	0·59	+ 0·64	1·35	1·05	+ 0·30	0·75	Gilgit.		
29	1				1				Calm					60	·190	4·1	6			1·71			2·24			0·40	Chitral.		
24		2					5		N 76° W					50	·161	3·7	6			1·51			2·52			0·42	Killa Drosh.		
25		1				1	2	2	N 72° W	3·9				60	·205	4·2	8	9·00	−1·00	3·92	4·76	− 0·84	4·54	8·11	− 3·57	0·80	Para Chinar.		
	1	8	2	3				17	N 7° W	8·7	8·1			48	·202	3·7	5			1·27	3·79	− 2·52	1·37	10·17	− 8·80	0·32	Cherat.		
13	2	2	4	8	1		1		S 72° E	5·5	6·8	9·4	−28	56	·200	4·7	6	4·90	+1·10	2·95	4·05	− 1·10	3·11	12·70	− 9·59	0·90	Murree.		
22		6	1	1	1				N 63° E							5·2	13			8·01	4·11	+ 3·90	9·75	12·29	− 2·54	1·73	Poo.		
1	11	5	3	3	2			4	N 24° E	7·6		2·8	+171	44	·155	5·5	5	4·30	+0·70	2·18	2·07	+ 0·11	4·16	9·01	− 4·85	0·53	Simla.		
14	11	4						2	N 5° E	10·4		5·9	+76	50	·175	4·1	6	4·50	+1·50	2·24	2·30	− 0·06	5·06	11·39	− 6·33	0·65	Chakrata .	United Provinces	25
1	1		5	2	2	1	14	5	N 88° W					48	·187	4·2	5	4·10	+0·90	1·49	1·28	+ 0·21	4·30	10·58	− 6·28	0·43	Mussooree.		
11	1	5	2			4	3	5	N 37° W	3·4	3·9	2·6	+50	50	·216	2·8	2	3·40	−1·40	0·74	1·95	− 1·21	2·61	7·61	− 5·00	0·44	Ranikhet.		
1	3	2	3	8	2	1		11	N 27° E	7·1	6·5			44	·168	2·8	2			0·66			2·32			0·51	Muktesar.		

† Observation of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
13	Bengal	Yatung											50·2		29·6		39·9		20·6	59·1	31st	23·9	14th	35·2
		Darjeeling	7,376	23·009	+·004		23·152	25th	22·914	29th	·238	49·4	58·4	+1·9	43·5	+1·2	50·9	+1·6	14·9	64·1	29th	37·0	23rd	27·1
		Gangtok	5,660	24·463			24·487	5th, 13th & 15th.	24·436	10th & 28th	·051	54·3	66·5		30·1		48·3		36·4	72·2	29th	23·0	13th	49·2
	Central India	Mount Abu	3,945	26·097	+·005		26·184	26th	25·978	21st	·206	72·9	81·6	+3·9	67·1	+5·6	74·4	+4·8	14·5	86·2	26th & 31st.	61·4	12th	24·8
		Pachmarhi	3,528	26·497	+·002		26·561	26th	26·391	21st	·170	76·1	88·3	+3·9	63·2	+2·8	75·7	+3·4	25·1	94·2	28th	53·2	1st	41·0
	South India	Wellington*	6,200	24·287	−·012		24·331	16th	24·229	6th	·102	63·0	75·4	+1·7	50·3	−1·2	62·9	+0·3	25·1	81·2	23rd	42·2	5th	39·0
		Kodai Kanal	7,688	22·867			22·905	16th	22·828	2nd	·077	59·0	68·3		50·9		57·6		17·4	75·2	24th	45·3	6th	29·9
		Ootacamund		23·100			23·133	16th	23·065	2nd	·068	60·7	70·2		50·1		60·1		20·1	75·6	23rd	39·7	6th	35·9
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·953	P	29·891	30·001	16th	29·912	22nd	·089	79·4	87·0	−1·0	76·1	+0·1	31·6	−0·5	10·9	91·0	23rd	72·0	5th & 19th	19·0
		Colombo	40	29·909	−·017	29·875	29·964	16th	29·855	6th	·109	81·4	90·6	+1·2	75·1	+0·2	82·9	+0·7	15·5	93·5	6th	72·0	6th	21·5
	Persia	Meshed										44·5			38·6	+0·2						24·8	19th	
		Teheran		25·966‖ ** / 24·780			26·250 / 25·000	18th / 18th.	25·760 / 24·620	11th / 13th	·490 / ·380	49·0§	61·7	+4·5	40·3§	+1·9	51·1§	+3·2	21·4	73·9	31st	24·0	5th	49·9
		Ispahan		24·266			24·450	6th	24·125	13th	·325	48·7	63·5	+2·5	40·1	+4·1	51·8	+3·3	23·4	74·1	31st	29·9	18th	44·2
		Bushire	14	29·989	−·018	29·942	30·132	17th	29·802	22nd	·330	68·5	78·0	+5·7	64·4	+5·6	71·2	+5·7	13·6	90·1	13th & 30th.	56·2	17th.	33·9
		Bahrein	30	29·951‡‡			30·110	26th	29·762	22nd	·348	72·5‡	78·5‡		67·6‡		73·2‡		10·7	95·2	30th	61·3	5th	33·9
		Jask		29·923	−·065	29·893	30·067	26th	29·785	22nd	·282	75·9	84·7	+6·0	70·5	+4·4	77·6	+5·2	14·2	90·8	14th	63·2	28th	27·6
		Muscat	20	29·939	−·032	29·907	30·047	27th	29·804	23rd	·243	79·3	81·6	+5·0	77·0	+5·0	79·3	+5·0	4·6	88·2	22nd & 24th.	70·1	7th	18·1
	Arabia	Baghdad	220	29·857		30·063	30·181	17th	29·659	11th	·522	57·7	73·2	+0·9	51·3	+3·1	62·3	+2·0	21·9	87·1	31st	37·0	17th	50·1
		Bussrah		30·034			30·293	17th	29·844	12th	·449		75·3		58·8		67·1		16·5	88·8	31st	51·5	17th	37·3
		Aden*	94	29·876	−·014	29·902	29·934	18th	29·829	15th	·105	79·3	85·6	+0·7	74·5	−0·9	80·1	−0·1	11·1	90·3	22nd	71·4	27th	18·9
		Perim	201	29·739	+·003	29·875	29·776	1st	29·679	18th	·097	79·1	85·7	+0·4	76·1	+0·3	81·0	+0·4	9·6	89·1	29th	72·2	3rd	16·9
	Afghanistan	Kabul										41·6	60·4	+3·3	35·2	−0·4	47·8	+1·5	25·2	71·2	14th	21·4	19th	49·8
	Central Asia	Kashgar	4,255	25·606			26·070	3rd	25·180	18th	·890	39·6	56·3	+0·1	33·8	−2·3	45·1	−1·1	22·5	72·9	17th	20·8	20th	52·1
	Arabian Sea Islands.	Amini Devi	13	29·968?	+·013	29·909?	30·032	8th	29·908	22nd	·124	86·2	90·9	+2·9	77·9	−0·2	84·4	+1·4	13·0	95·2	31st	74·0	3rd	21·2
		Minicoy	7	29·960		29·892	30·006	16th	29·938	8th & 29th.	·098	83·8	88·0	−0·1						89·5	5th & 23rd.			
	Africa	Zanzibar	73	29·902	−·003	29·902	29·940	20th	29·872	23rd	·068	81·9	86·3	0	79·8	+0·5	83·1	+0·3	6·5	88·3	31st	76·3	5th	12·0
		Do. Dunga.		?			29·897	1st	29·859	23rd, 24th & 25th.	·038	80·3	90·5		69·0		79·8		21·5	94·6	1st & 7th.	62·1	6th	32·5
	Straits Settlement.	Penang¶	20	29·926		29·871	29·987	23rd	29·854	29th	·133	81·5	91·7		73·6		82·7		18·1	95·0	6th & 9th.	71·0	5th	24·0
		Singapur¶	10	29·935		29·866	29·988	27th	29·900	18th	·088	82·0	87·3		71·8		79·6		15·5	90·6	6th	67·4	1st	23·2

* Observations of 23 days.
¶ 9 hours' observations.
‡ Mean of 27 days.
‡‡ Mean of 25 days.
‖ Aneroid uncorrected.
** Mountain barometer, uncorrected.

NOTE.—When a query is inserted against any reading or in the variation returns for any station, the

I—*concluded.*

in India, Burma, etc., in March, 1902—concluded.

WIND DIRECTION. Number of winds from									Wind Resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.								Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st December 1901 to 31st March 1902.	Normal rainfall for period, 1st December to 31st March.	Variation from normal of period, 1st December to 31st March.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																	9	6·83	+ 2·17	2·72	2·33	+0·39	3·90	4·02	−0·12	0·55	Yatung .	Bengal.	13
14		1	3	2	1	1	7	2	S 76° W	7·4	6·9	6·6	+ 5	72	·257	2·6 ††	8	3·35	+ 4·65	3·23	1·55	+1·73	3·44	3·50	−0·06	0·67	Darjeeling.		
25	2		3				1		N 45° E	3·4	4·1			72	·307	1·8	10			4·27	5·05	−0·78	8·58	8·57	+0·01	1·18	Gangtok.		
5	2	4				9	3	8	N 72° W	7·3	7·4	6·7	+10	29	·230	1·6	0	0·50	− 0·50	0	0·13	−0·13	0	0·96	−0·96	0	Mount Abu	Central India.	
15	3	1	2	2	1	2	3	2	N 52° W	6·1	6·3	4·6	+37	25	·233	0·5	0	0·90	− 0·90	0	0·33	−0·33	0·60	1·92	−1·32	0	Pachmarhi.		
16	2	2	2	1					N 54° E	2·8		2·8	0	56	·324	1·3	3	3·00	0	1·28	2·41	−1·13	8·28	8·67	−0·39	0·57	Wellington	South India.	
	1	15	11	4					N 69° E	13·3				46	·224	1·6	5	3·20	+ 1·80	3·43	3·59	−0·16	18·15	11·81	+6·34	1·17	Kodai Kanal		
														47	·247	1·6	4	1·80	+ 2·20	2·14	1·00	+1·14	5·53	3·38	+2·15	1·42	Ootacamund		
																											XIII.—Extra India.		
16		2				13			S 45° W	1·0				90	·909	2·4	4			3·19	1·45	+1·74	27·39	24·71	+2·68	1·54	Trincomalee	Ceylon.	
4	2	6	14	4		1			N 82° E	4·9		5·0	−2	81	·873	2·6	8			6·85	4·45	+2·40	15·07	16·73	−1·66	1·70	Colombo.		
														76	·225	6·2	4			1·35	2·43	−1·08	4·82	4·57	+0·25	0·33	Meshed .	Persia.	
8	3	9			1	2	5	3	N 13° W	3·2	4·2			56	·195	3·7 ††	5			1·21	2·80	−1·59	4·51	6·28	−1·77	0·40	Teheran .		
21			1		1	5	2	1	S 51° W	2·9	3·8			50	·175	3·4	5			1·42	0·99	+0·43	2·76	1·96	+0·80	0·51	Ispahan .		
	5	11	3	5				7	N 31° E	8·4	10·0	8·9	+12	71	·498	4·7	1			0·26	1·00	−0·74	2·83	9·71	−6·88	0·12	Bushire.		
1	5	8	2	1	2	2	2	4	N 13° E					85‡	·680‡	0·4‡	0			0·04			0·63			0·04	Bahrein.		
5	3	4	5	1			3	10	N 7° W	10·8	12·5			70	·626	0·8	0			0	1·15	−1·15	0·67	3·77	−3·10	0	Jask.		
		1		10		2	2	16	N 60° W	4·9	5·1			63	·628	0·5	0			0	1·05	−1·05	0·80	3·37	−2·57	0	Muscat.		
19	6		1	1	1		2	1	N 11° W	2·3	3·0			75	·355	3·9	7			1·77	1·60	+0·17	2·54	6·79	−4·25	0·35	Baghdad.	Arabia.	
																	1			0·20			2·70			0·10	Bussrah.		
		5	12	4			1		N 88° E	14·5†	14·2†	14·9	− 5	75	·737	3·2	0			0	0·87	−0·87	0·41	1·85	−1·44	0	Aden.		
		1	10	17	2			1	S 59° E	24·9	22·4			82	·824	1·6	1			0·37	0·27	+0·10	1·85	0·95	+0·90	0·36	Perim.		
			6	10	7	6	1	1	S 21° E					71	·191	5·4	8			2·29	4·90	−2·61	3·01	7·41	−4·40	0·46	Kabul .	Afghanistan.	
23	1	1	2	1	1		2		E	3·0	2·7			§§ 49	§§ ·147	1·7	0			0	0·20	−0·20	0·03	0·78	−0·75	0	Kashgar .	Central Asia.	
	10	2	2			1		16	N 22° W					69	·864	3·2	0			0	0	0	1·90	0·51	+1·39	0	Amini Devi.	Arabian Sea Islands.	
	8	6	5	2			2	8	N 10° E	3·8	4·0			74	·855	2·2	3			1·28	0·98	+0·30	6·16	8·08	−1·92	0·83	Minicoy.		
2	2	6	7	6	4	4			S 69° E	4·3	4·0			85	·921	6·3	10			6·25	6·50	−0·25	14·46	14·02	+0·44	1·74	Zanzibar .	Africa.	
		Untrust		worthy						3·8	3·7			87	·891	3·8	15			11·66			25·90			1·81	Do. Dunga		
3	10	13		1	3			1	N 29° E	3·8						1·0	11			5·90			12·92			1·52	Penang .	Straits Settlement.	
	4	15	4	1			1	6	N 29° E							5·3	8			3·38			38·90			1·13	Singapur .		

data for that station are not utilized in calculating the provincial variations.

†† Mean of 29 days. §§ Mean of 22 days. † Mean of 21 days. § Mean of 30 days.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 65 Stations in India, Burma, etc., in March 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M.

Meteorological Province	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity, 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Bay Islands.	Port Blair	61	29·913	29·807	·106	29·849	−·002	29·840	90·5	77·0†	13·5	92·9	73·7	19·2	86·2	88·5	82·1†	+0·6	74·4	79·0‡	79·9§	77·8
	Rangoon	41	·895	·747	·148	·823	−·035	·801	97·1	72·0	25·1	100·3	68·4	31·9	85·0	93·8	82·0	+1·5	69·0	74·2	75·2	72·8
	Diamond Island	41	·929	·810	·119	·859	−·021	·835	90·5	77·4	13·1	93·0	73·2	19·8	82·7	83·5	81·1	+2·7	72·2	75·5	75·8	74·5
	Cocos Island	119	·904	·807	·097	·846	P	·897	88·2	77·1	11·1	91·8	75·3	16·5	84·3	84·8	80·7	+1·1	73·0	76·4	76·4	75·3
	Akyab	20	·947	·834	·113	·886	−·012	·848	89·6	68·5	21·1	96·0	62·2	33·8	82·3	84·8	78·4	+0·4		74·1	75·6	
Bengal and Orissa.	Chittagong	87	·874	·758	·116	·810	−·014	·845	88·4	67·8	20·6	93·3	63·1	30·2	82·2	84·8	77·7	+0·9	66·7	73·8	74·8	71·8
	Calcutta (Alipore)	21	·906	·779	·127	·836	−·017	·802	92·8	71·5	21·3	99·7	65·8	33·9	83·5	90·7	81·2	+2·0	68·1	74·2	73·0	71·8
	Saugor Island	25	·905	·788	·117	·840	−·016	·808	87·2	76·3	10·9	95·0	67·7	27·3	82·9	83·8	79·8	+0·4	75·7	77·5	78·0	76·4
	False Point	18	·920	·797	·123	·858	−·023	·821	86·5	74·0	12·5	94·3	65·0	29·3	84·1	83·4	78·4	+0·7	72·8	77·5	77·7	75·8
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·898	27·789	·109	27·839	−·023	·762	92·2	67·4	24·8	99·4	61·2	38·2	83·2	89·6	79·5	+4·1	57·5	63·0	64·5	61·7
	Darbhanga	166	29·734	29·596	·138	29·660	−·026	·780	89·8	65·2	24·6	97·1	58·2	38·9	81·0	83·8	77·7	+2·1	60·8	68·5	71·2	66·8
	Allahabad	309	·578	·449	·129	·503	−·047	·761	96·9	64·3	32·6	106·4	57·4	49·0	86·8	95·8	80·5	+2·7	56·0	67·7	69·8	64·4
Upper Sub-Himalayas.	Dehra Dun	2,233	27·662	27·567	·095	27·607	−·023	·793	84·2	57·8	26·4	92·1	51·9	40·2	73·8	81·1	70·2	+3·3	50·3†	57·8	59·0	55·7
	Roorkee	899	28·979	28·874	·105	28·920	−·036	·785	89·9	57·9	32·0	98·3	45·7	48·6	78·6	87·3	73·2	+3·5	50·5	60·3	62·0	57·6
	Meerut	738	29·137	29·035	·102	29·078	−·037	·781	90·7	59·4	31·3	98·8	48·5	50·3	79·3	88·6	74·3	+3·0	52·3	61·0	62·8	58·7
	Lahore	702	·205	·108	·097	·150	−·018	·828	86·9	57·7	29·2	95·4	46·0	49·4	75·0	85·1	71·7	+3·9	51·9	61·3	64·2	59·1
	Ludhiana	812	·085	28·991	·094	·032	−·018	·818	87·2	60·5	26·7	94·5	50·2	44·3	75·7	85·3	73·2	+4·4	54·1	60·0	61·8	58·6
Indus Valley and N.W. Rajputana.	Peshawar	1,110	28·840	·743	·097	28·786	−·026	·838	79·5	53·0	26·3	88·1	37·9	50·2	71·1	77·0	65·4	+2·4	47·8	59·6	61·4	56·3
	Jacobabad	186	29·725	29·594	·131	29·653	−·032	·797	97·1	65·4	31·7	105·4	54·8	50·6	84·5	94·4	80·4	+5·5	55·6	67·4	71·7	64·9
	Kurrachee	30	·923	·819	·104	·868	−·028	·848	89·5	70·1	19·4	96·4	61·4	35·0	83·2	84·6	78·7	+3·2	67·0	74·1	75·9	72·3
R. Rajputana, C. India and Gujarat.	Jaipur	1,431	28·495	28·382	·113	28·432	−·018	·804	95·4	65·2	30·2	102·1	57·7	44·4	85·2	93·4	79·7	+5·1	55·0	64·7	68·2	62·0
	Udaipur	1,925	·016	27·895	·121	27·956		·797	94·7	65·1	29·6	99·8	56·8	43·0	86·6	93·1	79·5		57·4	68·8	73·7	66·6
	Deesa	466	29·462	29·333	·129	29·391	−·031	·801	102·1	67·9	34·2	108·2	61·5	46·7	90·7	100·2	85·5	+4·8	55·5	64·9	67·3	62·3
	Jamnagar	61	·898	·771	·127	·834		·842	95·7	66·5	29·2	102·1	63·2	38·9	84·3	93·1	80·4		64·3	72·0	70·9	69·1
Deccan.	Belgaum	2,539	27·415‡	27·287‡	·128	27·350	−·010	·750‡	95·1	64·2	30·9	98·3	60·9	37·4	85·7‡	90·1‡	77·8‡	+0·7	60·0	64·3§	68·6§	64·4
	Sholapur	1,590	28·343	28·188	·155	28·262	−·020	·750	101·6	70·7	30·9	105·7	64·9	40·8	90·9	99·4	85·8	+1·7	55·4	66·0	68·7	63·4
	Akola	930	·998	·845	·153	·916	−·012	·775	103·0	67·0	36·0	107·7	59·8	47·9	92·3	101·8	85·6	+2·9	53·3	63·6	67·2	61·4
	Buldana	2,132	27·818	27·687	·131	27·747	−·008	·762	97·4	72·3	25·1	102·3	66·5	35·8	88·7	95·6	85·3	+3·2	53·7	60·8	62·9	59·1
	Khandwa	1,041	28·884	28·733	·151	28·804	−·016	·777	102·3	67·9	34·4	107·6	60·6	47·0	91·3	101·5	85·3	+4·3	52·8	64·6	68·1	61·8
	Nagpur	1,025	·903	·746	·157	·820	−·002	·775	101·9	69·8	32·1	106·3	64·3	42·0	90·0	99·8	86·2	+2·9	53·8	63·5	66·4	61·2
	Do. (Sanitary Commr.'s Office).	1,013	·915	·767	·148	·836		·782	102·9	69·3	33·6	107·8	63·3	44·5	91·2	101·3	85·7		57·1	66·1	70·3	64·5
	Hyderabad (Deccan).	1,690	·256	·123	·133	·186	+·006	·774	99·8	70·7	29·1	103·9	64·2	39·7	89·9	97·9	84·8	+2·7		69·1	69·3	
West Coast.	Bombay	37	29·922	29·798	·124	29·854	−·020	·832	88·2	75·7	12·5	92·2	71·3	20·9	82·5	85·0	81·4	+2·6	71·0	75·1	76·4	74·2
	Karwar	44	·933	·810	·123	·865	+·002	·841	88·4	74·1	14·3	92·6	68·9	23·7	84·2	87·1	81·1	+1·1	72·4	75·2	76·7	74·8

† Mean of 28 days. ‡ Mean of 30 days. § Mean of 29 days.

II.

at 65 Stations in India, Burma, etc., for March, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind direction. Number of winds from										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
†	‡	§																							%	%						
·834	·897	·907	·879	+·016	90†	71‡	67§	76	0	3·3	2·8	3·1	+0·2		7	28	11	9	3	1	2	1	N 63° E	N 62° E	61	64	98	103	0·48	0·42	Port Blair	Burma Coast and Bay Islands.
·674	·699	·633	·668	−·003	86	58	40	61	− 3	1·9	3·2	2·6	+0·5						Not		recorded.								0	0	Rangoon	
·719	·785	·790	·765	0	77	70	69	72	− 3	1·6	1·7	1·7	−1·0	2	2		1				22	35	N 60° W	N 42° W	85	83	285*	206	0	0	Diamond Island	
·759	·801	·803	·788	+·020	82	68	66	72	0	1·7	1·6	1·7	+0·1				Imperfect						P	N 9° W	?	70	?	399	0	0	Cocos Island	
	·738	·767				66	64			1·5	1·5	1·5	−0·5			13	18				21	10	N 3° W	N 53° W	26	24	66*	93	0	0	Akyab	
·646	·726	·730	·701	+·018	92	64	59	72	− 2	3·2	1·8	2·5	−0·7		3	6	3	8	11	14	5	12	S 44° W	S 36° W	24	20	128*	129	0·88	0·60	Chittagong	Bengal and Orissa.
·647	·727	·580	·651	+·017	84	64	42	63	− 3	2·1	2·2	2·2	−0·3		2	2	4	6	14	24	6	4	S 29° W	S 36° W	53	49	135	118	1·49	0·96	Calcutta (Alipore)	
·801	·871	·888	·853	+·042	88	77	76	80	+ 2	3·6	2·8	3·2	−0·5		1	2	2	3	38	14		2	S 7° W	S 26° W	76	61	345	309	1·32	0·92	Saugor Island	
·776	·856	·875	·836	+·050	92	74	76	81	0	2·7	2·8	2·8	−0·4					1	34	24	3		S 20° W	S 50° W	89	57	258*	266	0·52	0·36	False Point	
·356	·328	·296	·327	+·043	53	30	22	35	+ 1	1·1	2·7	1·9	−0·8	3	9	1	2	1	6	7	8	25	N 60° W	N 74° W	50	54	183*	194	0·75	0·34	Hazaribagh	Gangetic Plain and Chota Nagpur.
·482	·536	·530	·516	+·069	77	52	40	56	+ 2	0·7	0·8	0·8	−0·5	6	3	3	16	13	2	6	8	5	S 59° W	S 78° W	21	31	78	113	2·23	1·14	Darbhanga	
·342	·413	·382	·379	+·020	57	33	23	38	− 4	1·5	2·0	1·8	−0·2	6	5	4	4	3	3	4	15	18	N 60° W	N 62° W	40	40	146*	110	0	0	Allahabad	
·273†	·282	·250	·262	−·031	56†	35	22	38	−10	3·6	4·1	3·9	+0·4	1	5	1		4	8	6	22	15	N 88° W	N 80° W	53	27	54	50	0·41	0·20	Dehra Dun	Upper Sub-Himalayas.
·276	·284	·221	·260	−·068	57	30	17	35	−14	2·7	2·6	2·7	+0·2	9	2	1	1	11	6	5	3	24	N 80° W	N 64° W	23	25	94	72	0·14	0·11	Roorkee	
·306	·298	·233	·279	−·078	66	31	17	36	−13	1·9	2·2	2·1	−0·4	17		4	2	2		3	16	13	N 64° W	N 60° W	43	44	50*	66	0·01	0·01	Meerut	
·315	·365	·325	·335	−·019	65	42	27	45	− 5	3·6	3·3	3·5	+0·3	1	15	4	2	4	3		10	23	N 34° W	N 10° W	55	31	74	70	0·77	0·50	Lahore	
·337	·316	·242	·298	−·066	64	35	20	40	−14	3·0	3·3	3·2	−0·9	3	5	4	5	5		2	25	13	N 63° W	N 45° W	43	34	77*	50	0·30	0·12	Ludhiana	
·277	·377	·362	·339	+·011	67	50	40	52	− 5	4·3	4·8	4·6	−0·2	15	5	9	7	5	1	4	10	6	N 1° W	N 18° E	13	16	53*	91	0·74	0·39	Peshawar	Indus Valley and N.-W. Rajputana.
·322	·449	·484	·418	+·117	52	38	29	40	+ 3	2·7	3·9	3·3	+0·3	9	4	6	9	24	5	2	1	2	S 63° E	N 87° E	48	15	85*	91	0·08	0·05	Jacobabad	
·628	·720	·780	·709	+·118	84	63	66	71	+ 6	1·1	1·6	1·4	−1·3	2	1	1	2	1	2	30	21	2	S 63° W	S 77° W	73	60	235*	281	0	0	Kurrachee	
·258	·363	·382	·334	+·029	41	29	24	31	− 6	2·5	2·5	2·5	−0·5	1	3	8	4	2	2	14	18	10	N 84° W	N 39° W	39	32	91	113	0	0	Jaipur	E. Rajputana, C. India and Gujarat.
·388	·493	·597	·493		61	38	38	46		0·6	1·7	1·3		25	3	3	3			8	12	8	N 75° W		31		64		0	0	Udaipur	
·251	·275	·231	·252	−·047	36	20	12	23	− 6	0·9	1·1	1·0	−1·3		9	6	2	1	2	11	15	16	N 63° W	N 66° W	49	35	160‡	209	0	0	Deesa	
·577	·624	·465	·555		89	53	30	57		0·8	0·4	0·6		1	6	1	1			10	30	13	N 79° W		73		300*		0	0	Jamnagar	
·473	·341§	·439§	·420	+·020	78	28§	32§	46	+ 5	0	‡ 2·6	1·3	−0·6		8	5	7	7	5	12	12	2	S 50° W	N 81° W	13	17	267†	272	0·19	0·11	Belgaum	Deccan.
·249	·332	·318	·300	−·044	32	23	17	24	− 7	0·5	2·2	1·4	−1·0	1	10	7	1	14	5	8	1	15	N 16° W	N 44° E	8	5	253*	190	0	0	Sholapur	
·229	·206	·208	·214	−·087	34	14	10	19	−10	0	0·3	0·2	−1·5	3	5	5	6	3	1	10	7	22	N 52° W	N 43° W	37	42	120*	113	0	0	Akola	
·186	·189	·167	·181	−·101	24	14	10	16	−12	0	0·1	0·1	−2·1		12	4	4	2	3	7	13	17	N 51° W	N 28° W	45	47	170*	176	0	0	Buldana	
·216	·272	·265	·251	−·051	32	19	13	21	−10	0·3	0·5	0·4	−1·3	1	8	5	5	5	2	3	17	16	N 50° W	N 45° W	39	45	141	116	0	0	Khandwa	
·221	·256	·232	·236	−·119	30	18	12	20	−14	0	0·7	0·4	−2·1	1	9	3	5	3	5	10	13	13	N 73° W	N 1° E	34	12	134	133	0	0	Nagpur	
·320	·331	·357	·336		45	23	18	29		0	0·7	0·4		7		8		14		10		23	N 60° W		14		40*		0	0	Do. (Sanitary Commr.'s Office)	
	·461	·365				33	20	▮		0·6	2·2	1·4	−0·4	18	3	3	7	18	2	3	5	3	S 53° E	S 41° E	26	23	90	105	0	0	Hyderabad (Deccan).	
·700	·780	·799	·760	+·048	79	70	66	72	0	0·3	0·3	0·3	−1·3		5	3	6	5	4	2	14	23	N 54° W	N 31° W	40	52	206	270	0	0	Bombay	West Coast.
·778	·758	·781	·772	+·019	92	64	61	72	− 2	1·2	1·0	1·1	−0·3	1	2	2	1			6	37	13	N 80° W	N 75° W	79	77	111	96	0	0	Karwar	

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 65 Stations

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure.						Temperature of air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity, 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	29·017	28·860	·157	28·945			95·8	68·2	27·6	100·9	57·2	43·7	85·6	93·2	81·6		64·9	74·2	74·9	71·2
	Salem	940	·033	·873	·160	·959	—·023	29·819	99·1	71·0	28·1	103·5	61·3	42·2	86·9	95·6	83·0	+1·0	68·6	77·3	79·9	75·3
	Chitaldroog	2,405	27·563	27·422	·141	27·491	+·004	·757	96·3	71·3	25·0	98·8	66·9	31·9	86·8	94·2	83·3	+1·7	60·9	67·8	67·5	65·4
	Bangalore	3,021	26·992	26·862	·130	26·929	—·009	·782	92·2	65·4	26·8	96·7	57·7	39·0	82·1	89·9	78·2	+1·3	59·6	65·9	64·0	63·2
	Hassan	3,091	·928	·796	·132	·864	+·008	·779	91·5	63·0	28·5	94·5	55·2	39·3	82·6	89·9	76·9	+0·9	60·0	64·4	63·8	62·7
	Mysore	2,518	27·473	27·326	·147	27·400	+·007	·784	94·5	67·6	26·9	97·9	59·5	38·4	82·7	91·9	80·4	+0·4	62·1	68·1	65·5	65·2
	Madras	22	29·949	29·831	·122	29·889	—·015	·841	90·3	73·0	17·3	94·3	65·9	28·4	86·5	85·7	80·9	+0·1		76·4	77·2	75·5
	Bellary	1,475	28·478	28·321	·157	28·398	—·004	·778	102·5	73·4	29·1	106·8	65·2	41·6	90·4	99·0	87·1	+1·5	61·4	72·2	73·6	69·4
	Waltair	226	29·731	29·610	·121	29·671		·838	87·3	74·3	13·0	89·2	70·4	18·8	84·5	83·6	79·9		68·4	74·4	75·6	72·8
Hill Station, Baluchistan.	Quetta	5,502	24·675	24·587	·088	24·625	+·006		71·0	41·9†	29·1	79·6	31·6	48·0	62·1	67·3	55·5†	+4·4	38·3	48·2	50·0	45·5
Hill Stations, Northern India.	Leh	11,503	19·695	19·607	·088	19·656	—·004		45·1	21·9	23·2	53·0	14·4	38·6	35·4	40·5	32·9	+1·0	19·8	29·0	31·8	26·9
	Srinagar	5,204	24·932	24·848	·084	24·883	—·016		61·3	38·0	23·3	76·6	31·0	45·6	49·8	58·4	48·9	+3·5	36·2	47·4	54·6	46·1
	Kailang	10,087	20·982	20·915	·067	20·960	?		42·2	23·3	18·9	49·7	12·0	37·7	33·7	35·9	30·2	+1·1	22·4	29·5	31·4	27·8
	Simla (Ridge)	7,224	23·153	23·099	·054	23·119	+·022		58·2	45·6	12·6	64·5	39·0	25·5	53·1	55·6	51·5	+1·0	38·5	42·7	44·4	41·9
	Chakrata	7,022	·321	·265	·056	·288	+·010		62·2	45·9	16·3	71·4	35·4	36·0	54·4	57·3	53·0	+1·7	40·3	44·9	45·3	43·5
	Ranikhet	6,069	24·137	24·063	·074	24·093	+·010		67·2	50·6	16·6	74·2	42·5	31·7	61·2	63·2	58·1	+1·6	43·6	48·7	48·6	47·0
	Muktesar	7,600	22·890	22·824	·066	22·857			63·8	45·0	18·8	73·6	37·9	35·7	57·0	58·5	53·1		38·7	45·1	46·3	43·4
	Katmandu	4,388	25·598	25·486	·112	25·543	?		77·9	47·1	30·8	84·8	39·9	44·9	67·3	73·5	61·4	+0·9	45·5	55·5	56·4	52·5
	Darjeeling	7,376	23·013	22·960	·053	22·986	+·008		58·6	43·5	15·1	64·1	37·0	27·1	52·6	55·9	50·4	+2·2	40·9	47·3	50·1	46·1
Hill Stations, Central India.	Mount Abu	3,945	26·117	26·034	·083	26·069	+·001		81·7	67·1	14·6	86·2	61·6	24·6	76·4	79·7	73·9	+5·0	51·7	55·6	58·2	55·2
	Pachmarhi	3,528	·522	·423†	·099	·466†	+·004		88·6	63·2	25·4	94·7	53·4	41·3	82·1	87·0†	77·3†	+3·5	50·3	57·9	59·2†	55·8
	Chikalda	3,642	·395	·288	·107	·336	—·010		89·8	69·9	19·9	94·5	64·1	30·4	82·5	88·5	81·4	+4·2	53·5	58·2	60·3	57·3
Hill Stations, South India.	Wellington	6,200	24·306‖	24·224‖	·082	24·265‖	—·001		75·5‖	50·3§	25·2	81·2	42·2	39·0	71·0‖	70·6‖	61·5‖	−0·7	47·3§	55·0‖	57·6‖	53·3
	Kodaikanal	7,688	22·890	22·821	·069	22·850			68·3	50·9	17·4	75·2	45·3	29·9	64·2	62·0	57·7		42·3	50·9	53·8	48·8
	Ootacamund		23·119	23·045	·074	23·082			70·4	50·1	20·3	75·6	39·8	35·8	66·2	65·4	59·0		44·3	51·8	53·7	49·9
Extra India.	Aden	94	29·855§	29·773‖	·122	29·822	—·024	·847‖	85·9§	74·5§	11·4	89·3	71·5	17·8	80·6‖	83·9§	79·8§	+0·7	67·6§	72·8§	71·1‖	70·5
	Perim	201	·755	·636	·119	·684	−·007	·820	85·8	76·1	9·7	89·1	72·2	16·9	82·6	83·0	80·3	+0·4	73·1	76·6	77·0	75·6
	Minicoy	7	·971	·881	·090	·916		·849	88·1			89·5			86·0	85·2				78·0	77·5	
	Zanzibar	73	·914†	·797†	·117	·856	+·010	·856‡	86·6	79·8	6·8	88·7	76·3	12·4	83·9†	86·2†	83·2†	+0·7	75·0	79·1†	79·1†	77·7
	Port Victoria (Seychelles)	15	·956	·863	·093	·910	+·005	·848	84·3	74·4	9·9	86·5	72·4	14·1	82·7	83·4	79·1	−0·8	73·6	77·0	77·0	75·9
	Mauritius (Pamplemousses)	181				·815	+·028	·943				87·5	65·2	22·3			76·4	−1·4				

† Mean of 30 days. ‡ Mean of 29 days. § Mean of 23 days. ‖ Mean of 22 days.

II—*concluded.*

in India, Burma, etc., for March, 1902—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·579	·696	·625	·630		83	57	42	58		2·1	3·1	2·6		3		2	15	11	5	5	2	2	S 52° E		35		73*		1·10	0·61	Periyakulam¶.	South India.
·673	·822	·823	·773	+·135	88	63	49	67	+11	2·0	4·0	3·0	+0·6	22		3	28	3	3	2	1		S 82° E	S 66° E	48	38	95*	126	0·65	0·44	Salem	
·412	·447	·345	·401	+·004	54	35	21	37	− 1	0·9	2·1	1·5	−0·8	5	8	11	18	8		1	4	7	N 57° E	N 87° E	42	27	147*	154	0	0	Chitaldroog	
·449	·458	·299	·402	−·053	72	42	21	45	− 5	0·6	2·2	1·4	−0·9		2	12	25	5	5	9	3	1	S 82° E	S 27° E	43	46	177*	100	0·67	0·67	Bangalore	
·487	·398	·297	·391	−·060	83	36	21	47	− 9	2·1	4·9	3·5	−0·4		3	16	19	11	2	2	4	5	N 77° E	S 84° E	48	51	73*	74	0·02	0·01	Hassan	
·496	·503	·302	·435	−·020	73	45	20	46	− 2	2·6	4·3	3·5	+1·2		6	11	17	12	3	4	4	5	N 82° E	N 84° E	37	37	185*	182	0·16	0·11	Mysore	
	·777	·819	·813	+·041		61	66	77	+ 3	2·3	1·5	1·9	−0·5			3	14	25	15	5			S 42° E	S 46° E	74	81	152	150	0	0	Madras	
·339	·606	·514	·506	+·085	48	42	28	39	+ 3	0·6	2·4	1·5	−0·7	6	2	2	16	6	13	1	5	11	S 51° E	S 35° E	18	19	121*	109	0	0	Bellary	
·621	·719	·782	·707		73	61	68	67		1·6	1·9	1·8							4	58			S 42° W		98		152		0	0	Waltair	
·202†	·201	·184	·196	−·016	73†	35	28	45	−12	3·0	5·1	4·1	0	14	4	1	1	1	7	4	21	9	N 89° W	S 74° W	45	33	80*	102	0·54	0·12	Quetta	Hill Station, Baluchistan.
·093	·112	·112	·106	+·001	77	54	45	59	+ 1	5·4	7·3	6·4	+0·1		2	4	5	6	18	17	8	2	S 18° W	S 40° W	48	22	64	45	0·70	0·49	Leh	Hill Stations, Northern India.
·196	·307	·383	·295	+·063	84	84	77	82	+ 5	4·7	6·7	5·7	+0·1	7	9	6	2	4	5	2	13	14	N 48° W	N 7° W	34	8	233*	83	4·20	1·04	Srinagar	
·116	·132	·142	·130	+·013	90	67	68	75	+ 5	6·6	8·5	7·6	+1·4		1	2			8	16	26	9	S 76° W	S 70° W	71	73	19	32	7·48	2·32	Kailang	
·164	·163	·179	·171	−·014	54	42	41	46	− 4	5·4	5·9	5·7	+0·9	1	14	6	1	9	10	2	5	12	N 20° W	S 37° W	14	8	180†	136	2·18	0·53	Simla (Ridge)**	
·191	·203	·182	·193	−·001	64	51	40	52	− 1	4·5	5·6	5·1	+1·2	17	8	3		7	24		1	2	S 16° E	S 52° W	29	11	249	150	2·24	0·65	Chakrata	
·214	·216	·195	·208	−·024	59	42	35	45	− 8	3·5	4·8	4·2	+0·5	8	2	4	8	1	2	16	11	10	S 83° W	S 57° W	29	27	97*	78	0·74	0·44	Ranikhet	
·173	·180	·191	·181		58	40	41	46		2·8	4·7	3·8			2	6	3	14	4	8	2	23	N 66° W		11		159*		0·66	0·51	Muktesar	
·295	·313	·267	·292	−·013	89	47	33	56	− 5	2·8	4·1	3·5	−0·1			4	9	8	5	5	29	2	S 61° W	N 82° W	31	48	25	32	1·71	0·77	Katmandu	
·232	·273	·303	·269	+·017	82	69	67	73	0	4·5	4·2	4·4	−0·8	1		2	2	4	3	20	23	7	S 69° W	S 75° W	61	44	166*	187	3·28	0·67	Darjeeling	
·209	·207	·244	·220	+·001	32	22	24	26	− 6	1·3	2·2	1·5	−0·7		8	2		1	2	26	12	11	S 83° W	N 81° W	58	38	178*	164	0	0	Mount Abu	Hill Stations, Central India.
·218	·201	·181†	·200	−·045	38	18	14†	23	−11	0·5	1·2†	0·9	−1·2	9	6	7	2	2	2	4	12	17	N 48° W	N 57° W	40	32	153*	115	0	0	Pachmarhi	
·223	·207	·203	·211	−·076	30	19	15	21	−12	0·2	0·2	0·2	−2·2	32	15	1		1	1	7	1	4	N 32° W	N 53° W	22	30	172*	173	0	0	Chikalda	
·298§	·273‖	·343‖	·305	−·029	81§	36‖	47‖	55	− 5	2·7‖	3·8‖	3·3	+0·3		8	5	4	25	2				S 72° E	S 49° E	57	65	68‖	61	1·28	0·57	Wellington	Hill Stations, South India.
·190	·243	·334	·260		51	42	62	55		2·0	5·0	3·5			4	19	14	15	1				N 81° E		63		317		3·43	1·17	Kodai Kanal††	
·237	·239	295	·257		65	37	48	50		2·3	4·4	3·4																	2·14	1·42	Ootacamund	
·592§	·709§	·594‖	·632	−·073	69§	68§	52‖	63	− 8	2·4§	0·3§	1·4	−1·8			9	20	9		1	5		S 89°.E	N 86° E	57	72	393‖	366	0	0	Aden	Extra India.
·775	·841	·853	·823	+·087	86	75	75	79	+ 7	0·7	0·2	0·5	−1·5				15	45	2				S 54° E	S 63° E	93	55	539*	441	0·37	0·36	Perim	
	·853	·843				69	70			2·5	3·9	3·2			20	12	8	2			5	15	N 3° E		61		96*		1·28	0·83	Minicoy	
·804	·932†	·904†	·889	−·009	79	80†	72†	77	− 1	6·5†	5·4†	6·0	+1·1	1	5	12	11	6	10	8	4	3	S 70° E	S 34° E	22	21	99*	141	6·25	1·74	Zanzibar	
·824	·854	·848	·842	+·028	96	76	74	82	+ 3	5·0	6·2	5·6	−1·1	9	10	9	4	3	1		7	19	N 16° W	N 31° W	45	56	114	127	9·87	1·58	Port Victoria (Seychelles).	
			·711	−·036				78	− 2																		214	235	5·20	2·07	Mauritius (Pamplemouses).	

¶ Wind variable 17. ** Wind variable 1 †† Wind variable 9. * Corrected.

CHART
OF
INDIA

SHEWING THE MEAN 8 A.M. DISTRIBUTION OF PRESSURE AND WIND DIRECTIONS IN THE MONTH OF **MARCH 1902.**

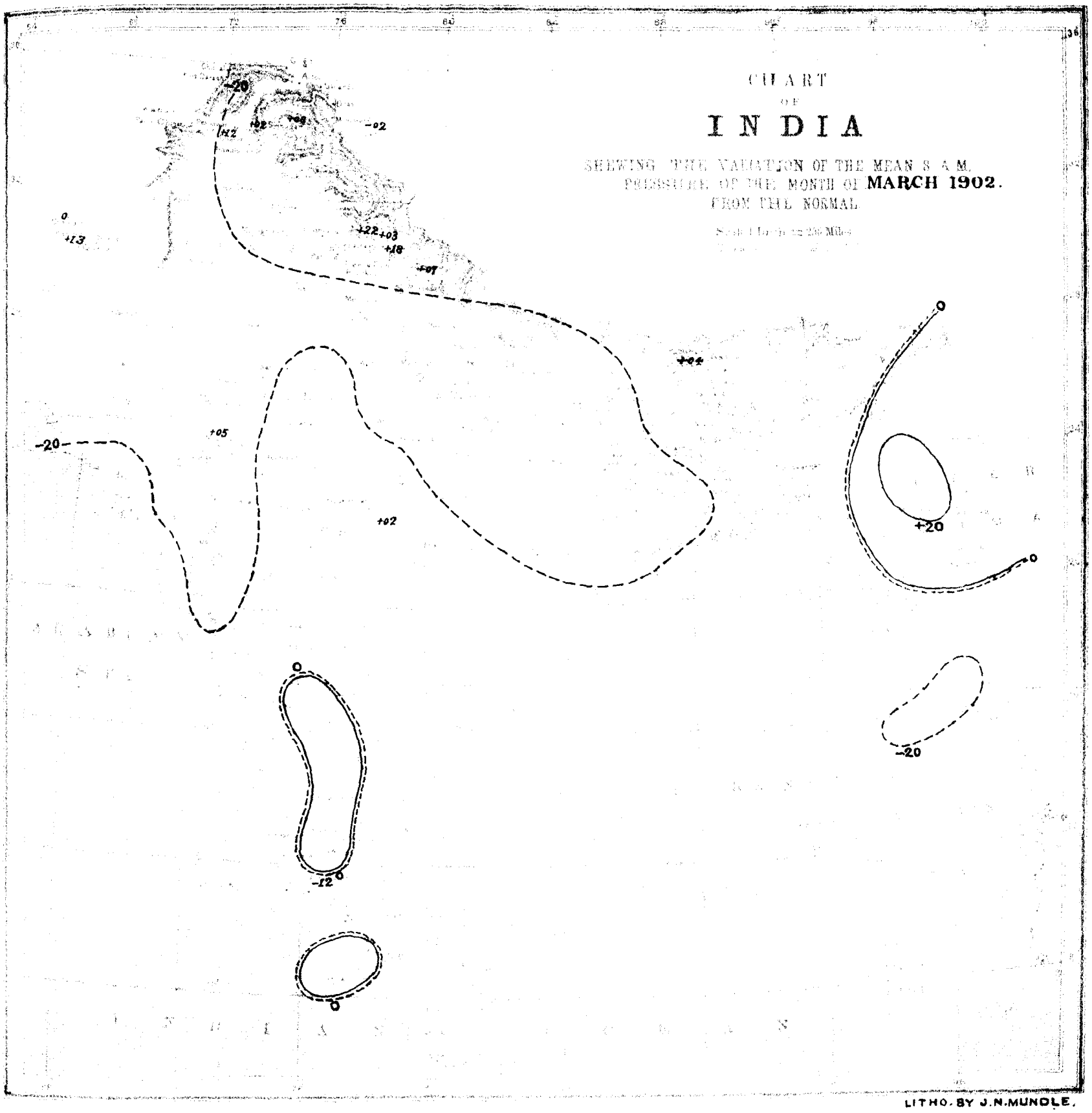
LITHO. BY J.N.MUNDLE.

Explanation.

The lines of the above Chart represent isobars or lines of equal barometric pressure, and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of .05 inch. The isobars in the Bay of Bengal are filled in by means of the ships observations, and by comparison with the ordinary or normal distribution of pressure as shown in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant Meteorological Reporter to the Government of India and published by the Meteorological Department. Hence they have not the same certainty as the isobars in the land area of India but it is probable they deviate very little from the actual.

The *mean 8 a.m. wind directions of the month* are shewn by means of arrows flying with the wind, and are calculated by means of Lambert's Formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0	to	2	miles	per	hour	...	one	feather	added	to	the wind arrow
„ „	2	to	5	„	„	„	...	two	feathers	„	„	„ „
„ „	5	to	10	„	„	„	...	three	„	„	„	„ „
„ „	10	to	20	„	„	„	...	four	„	„	„	„ „
	over		20	„	„	„	...	five	„	„	„	„ „



LITHO. BY J.N.MUNDLE.

Explanation

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other, one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

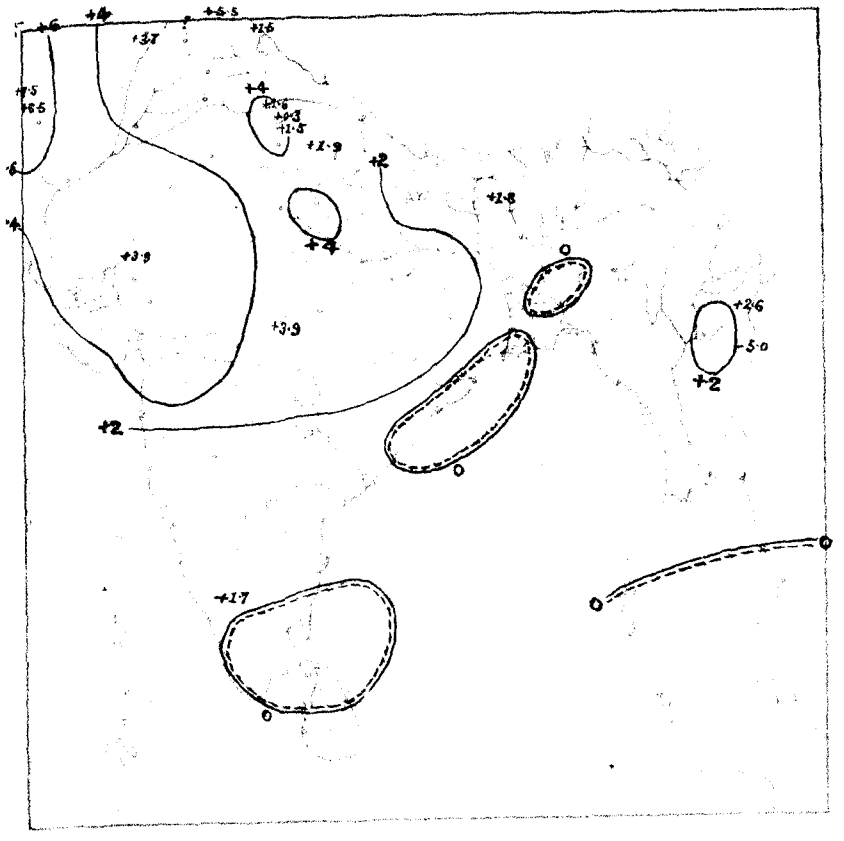
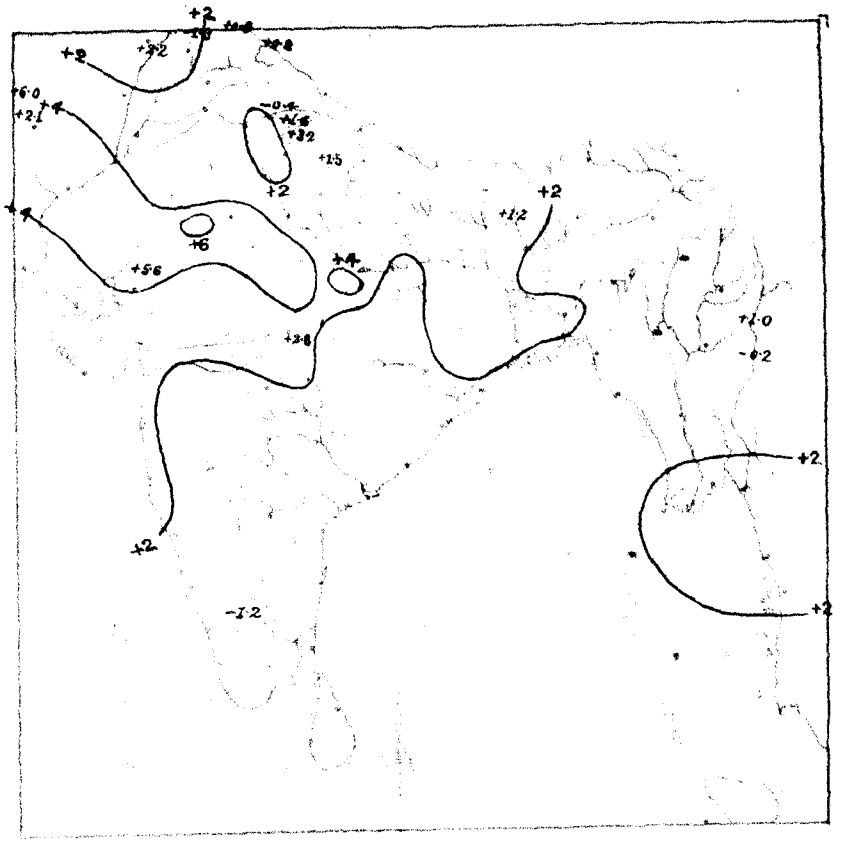


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous lines indicate that the mean maximum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

Continuous lines indicate that the mean minimum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

CHART SHEWING THE VARIATION OF THE MEAN DAILY TEMPERATURE OF THE MONTH FROM THE NORMAL.

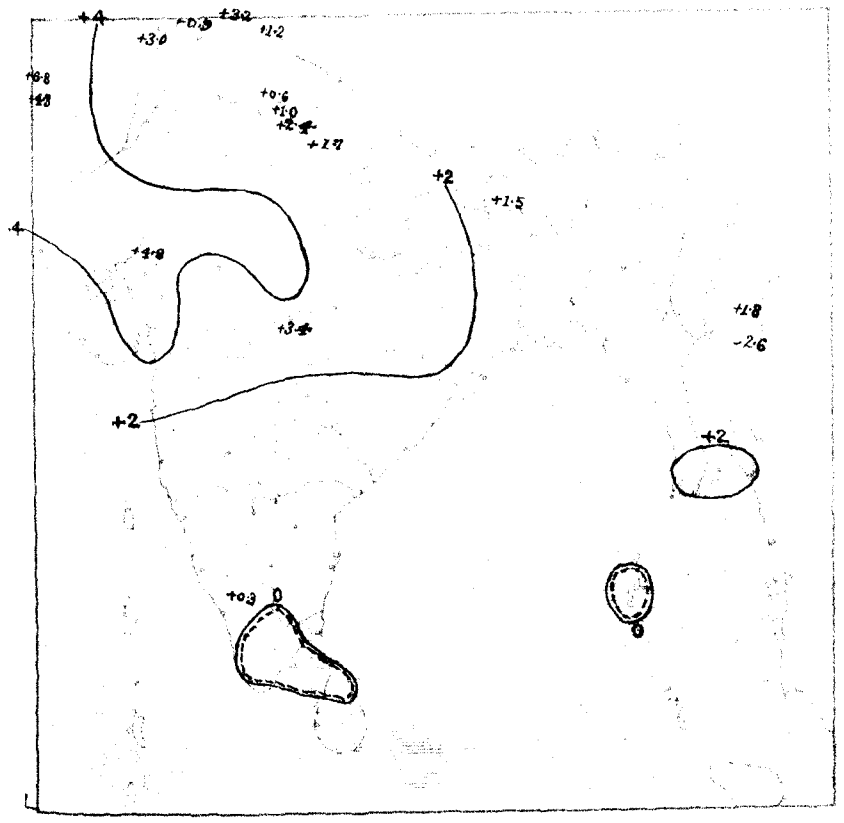
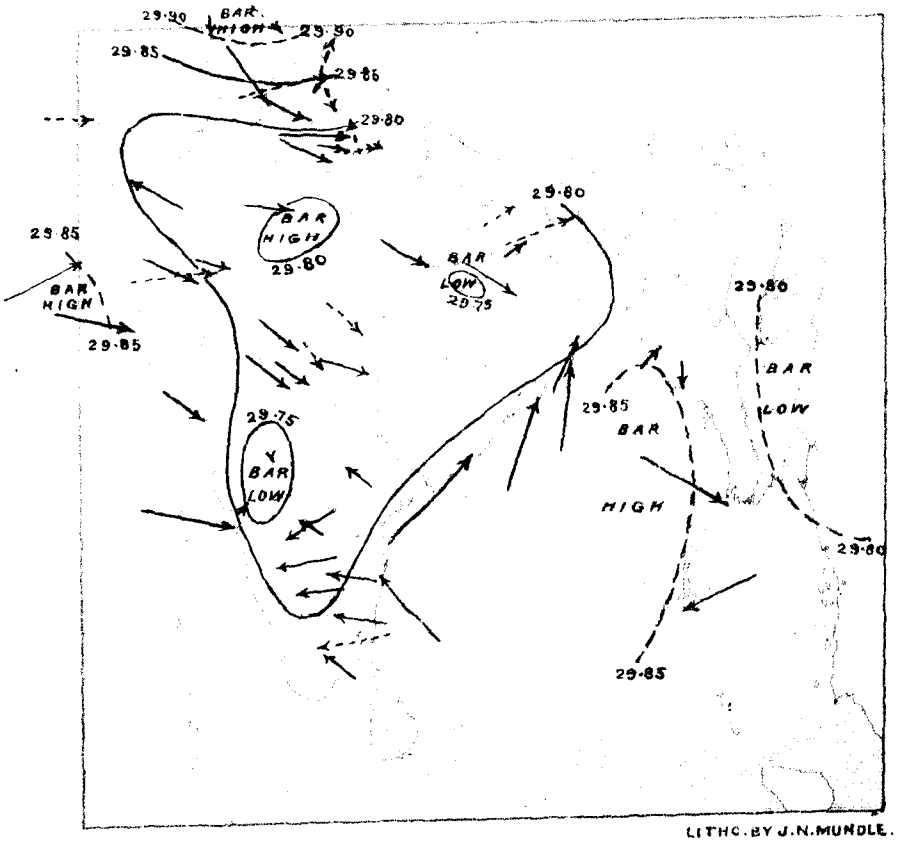


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF MARCH 1902.



LITHO. BY J.N.MUNDLE.

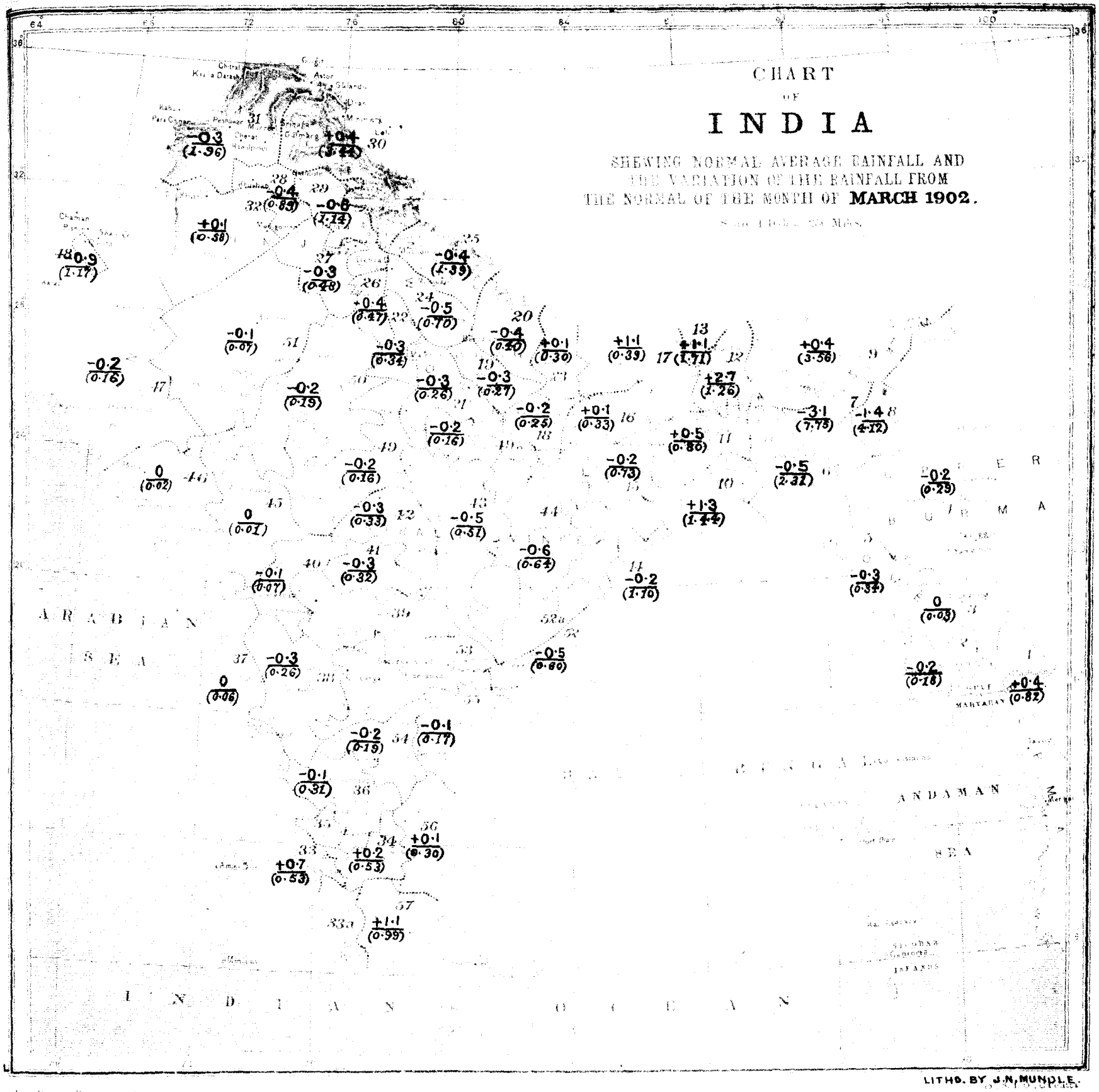
Explanation.

Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{1}{8}$th of an inch being equal to 100 per cent.

Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India (182 in number), except those at the Hill Stations over 3,500 feet in Elevation. The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.



Explanation.

The Chart gives the variations of the rainfall of the month in centres of districts from the normal over the whole of India and Burma with the exception of Lower Burma for which rainfall data have not been received for a sufficient number of years to furnish reliable and useful means. The country is divided into 57 areas over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means both actual and normal by the month have been calculated, and the numbers given in the centre of each division (usually with a + or − sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The normal average rainfall is also given below in smaller figures enclosed within brackets so that the percentage variation can be at once estimated. The name of the district can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim
2. Lower Burma Deltaic
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. North Western Provinces, East
19. South Oudh
20. North do.
21. North Western Provinces, Central
22. Do. do., West
23. Do. do., East Submontane
24. Do. do., West do.
25. Do. do., Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
34. Travancore
35. Madras, South, Central
36. Coorg
37. Mysore
38. Konkan
39. Bombay Deccan
40. Hyderabad, North
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
50. Do. do.
50. Rajputana East, Central India West
51. West Rajputana
52. Madras, East Coast, North
52(a). Do. do. do. (a)
53. Hyderabad South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South.
57. Madras, South

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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

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CALCUTTA, APRIL, 1902.

INTRODUCTION.

THIS review of the weather in India during the month of April 1902 is based on observations taken daily at 8 A.M. at 221 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 64 stations. In the rainfall summary the rainfall data of the meteorological observatories and the rainfall statements of the month published by the Provincial Governments that had been received up to the date of the publication of the review, are utilized. A summary of the weather in the Bay of Bengal and the Arabian Sea, derived from information extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given.

Summary of the chief features of the weather in India during the month of April, 1902.

The weather during the month in North India was chiefly conditioned by the passage eastwards of an unusually large number of depressions, most of which advanced eastwards from the Persian area. The disturbed periods of the month in Persia were (1) 1st to 4th; (2) 12th and 13th; (3) 17th and 18th; (4) 21st and 22nd and (5) 28th.

The following gives a brief account of the larger meteorological features of the month so far as they are revealed by the data available for India and the areas to the north and west and the adjacent seas. They fall broadly into three classes: (1) changes conditioned by the eastward march of depressions from the Perso-Baluchistan area, over Upper India into North-East India; (2) changes due to the development and advance of depressions apparently originating within India itself; (3) extensive and widespread changes of an oscillatory character, in general shewing as moderate to large and practically simultaneous, increases and decreases of pressure over the whole Indian monsoon area and probably extending much beyond. The weather of India during the month was thus the resultant of several actions which interacted occasionally in a very intricate manner.

It will be convenient to consider the weather of the month in periods, mainly according to the periods of advance of the various storms of the month.

First period, 1st to 4th. Previous to the arrival of the first Persian storm of the month.—During this period the following changes were in progress: (1) A depression of the first type which was initiated at the end of March and moved from the east of the Central India Plateau to Upper Burma during the 2nd and 3rd. (2) A depression probably of the second type shewed in Sind from the 1st to the 3rd. It developed somewhat and moved a little

towards the north on the 4th, just before the advance of the first Persian depression of the month. (3) A rise of pressure which on the 1st shewed over all India, except the parts affected by depressions (1) and (2) above, and which culminated on the 2nd when it extended over the whole monsoon area from Singapore to Perim and from Kashgar to Zanzibar. A fall, moderate but almost as general as the previous rise, succeeded on the 3rd and culminated on the 4th, at the time when the Persian depression was approaching the north-west of India. The general distribution was only very slightly affected by these oscillatory changes and pressure remained throughout the period (except in so far as it was modified by the movements of depressions (1) and (2)) relatively high in Assam and Upper Burma and relatively low in the South-West Punjab. The only rainfall of the period occurred on the 3rd in North-East India as the first depression began to affect that area. Throughout the period the temperature was steadily from 4° to 6° above normal in North-West India, but in North-East India fell rapidly on the 3rd and 4th, with the extension of rainfall in that area. Pressure continued during the period remarkably uniform over the Peninsula as also over the greater part of Burma and winds in these regions were in general light and local. A few thunder-showers were received in this area during the period and temperature was generally low.

Second period, 5th to 9th. The period of the first Persian storm of the month.—The development of this depression, which began to form in the Persian area on the 1st, was probably to some extent checked by the general rise of pressure which culminated on the 2nd. The depression deepened rapidly, however, on the 3rd and following days during the general fall of pressure which then occurred and by the 5th had extended eastward over the whole of Baluchistan and was affecting the north-west of India.

During the next few days the main centre of the depression moved in an easterly direction being probably central in Rajputana on the 6th, the Gangetic Plain on the 7th, in Chota Nagpur on the 8th and in East Bengal on the 9th. Its position on the 6th, it is, however, hard to determine with certainty.

As this depression passed through Rajputana, it gave rise to a subsidiary whirl in the Punjab which seemed to affect Kashmir on the 7th and apparently broke up on the 8th. Although the movements of these depressions in the main determined the pressure changes of the period, the widespread oscillatory actions noted during the first period continued. Thus on the 5th despite the advance of the Persian depression, pressure rose over the whole Indian region except locally at the centre of the depression area where, however, the fall was only very slight. A similar rise occurred on the 6th, the position of the depression on that date as on the 5th, being shown merely by a slight fall at the centre of the depression in its new position. By the 7th, the reverse phase had supervened and pressure began to fall very generally over the whole Indian region. That this general fall was not due to the movements of th depression is shown by the fact that by this time the storm had moved from the Indian plains into Kashmir, hence a general recovery of pressure might have been expected. The general fall continued till the 9th when it seemed to slacken and by the 10th was unmistakably replaced by a general decided rise.

Thus from the 1st to the 10th these oscillatory actions were distinctly traceable, general rises showing on the 1st and 2nd, the 5th and 6th and 9th and 10th, with falls on the other days. On these oscillatory actions the movements of depressions within India seemed to produce only local effects. They were simply superposed and could be distinctly traced by their influence in modifying locally the amount of rise or fall.

Important questions (which, however, cannot be effectively discussed here) arise in connection with these general actions. Over what extent of the earth's surface did they extend? Were they due to the movements of high or low pressure areas outside India or were they of the nature of waves, passing over the whole Eastern Hemisphere. If the latter what was their amplitude and what their direction of propagation? These questions demand for their adequate discussion data for a much larger area than is here considered. It is hoped, however, that an opportunity for discussing them will arise later in connection with data from Europe, Central Asia and Egypt now become available.

The following features of the weather may be noted during this period :—

(1) The temperature rose with the development of the Sind depression on the 3rd and 4th. It increased more rapidly as the Persian depression advanced on the 5th and 6th. On the latter date minima temperatures more than 12° above the normal and mean temperatures nearly equally excessive were reported from the Central Punjab. On the 7th northerly winds appeared in the rear of the Persian depression and spread over the Punjab. Hence temperature fell rapidly in the north-west dry area and the region of greatest excess of temperature was hence transferred eastwards, showing on this date near Meerut. With the general rainfall reported on the morning of the 8th over the Himalayas and Sub-Himalayas (West) the temperature fell rapidly in that area and defects of 14° from normal were reported from some stations. By the 9th in consequence of general rain in North-East India, the fall of temperature had extended into that area so that on that date the temperature was in moderately large defect from Peshawar to Assam. The defects amounted to 10° in North Bengal and 7° to 9° in the East Punjab and in West Bengal. Temperature was, on this date, above normal only in Sind and Gujarat and locally on the North Madras Coast.

(2) Pressure was continuously in excess in North-East India by amounts ranging from ·100″ on the 5th and 6th to about ·050″ on the 8th, the area of excess contracting and expanding with the changes in the phase of the pressure oscillations referred to above. It was conditioned also in part by the movements of the depressions of the period. In North-West and Central India pressure was almost continuously in defect.

(3) Besides the rainfall referred to under (1), slight to moderate falls occurred, chiefly during thunderstorms, over the Peninsula and in Lower Burma on the 5th and 6th. At this time pressure was uniform and winds light and irregular in these areas, conditions which, with local heating actions, were favourable for thundershowers. The amounts were in no case large.

(4) The following were the chief periods of precipitation at the Extra Indian stations to the north and west, due to the depression of the period :—

STATION.	Date of rainfall
Kalat	5th, 6th and 7th.
Kabul	"
Meshed	5th and 6th.
Kila Drosh	6th and 7th.
Chitral	6th.
Gilgit	7th and 8th.
Kashgar	9th.

The rainfall data seem to indicate that the disturbance which affected Kashmir on the 7th extended northwards as far as Kashgar on the 9th.

Third period, 10th to 14th. The period of the second Persian storm.—A shallow depression developed in Upper Sind during the last two days of the previous period while the first Persian storm was passing into North-East India. On the 9th it showed a fairly well-marked centre in Sind from which a large area of low pressure extended south-eastwards, covering the Central Provinces and the Deccan. On the 10th it was less clearly defined but seemed to have moved eastwards to the east of the Central Provinces and by the 11th seems to have passed into Orissa. The barometer fell locally in North-West India on the 11th, having risen briskly to rapidly there on the 10th as the Sind depression moved off to the east. The fall on the 11th reduced readings in this area from about ·100″ above normal to about normal. At this time a large shallow low pressure area shewed over Gujarat and the east of the Central Provinces.

On the 12th pressure fell over the whole Indian, Persian and Central Asian regions (except locally at the Baluchistan stations). The Russian data indicate that the fall exceeded half an inch in Central Asia near Lake Baikal. This agrees with the Indian data according to which the fall was most rapid in Further Kashmir. These changes initiated a depression in the South-East Punjab where pressure was about a tenth of an inch in defect. As at this time pressures were in much larger defect in Central Asia than in India, the Punjab depression was probably only a subordinate low pressure area cut off from the main centre by the line of the Himalayas.

The fall continued on the 13th over the same area as on the 12th (with local exceptions in the Central Punjab and at Tashkent, Chitral and Gilgit). The changes were, however, on this day less marked. Consequently on this date pressure was in considerable to large defect over practically the whole of India, the centre of lowest readings and greatest defect showing over the Gangetic Plain. Pressures were on this day also, as on the previous day, in much greater defect in Central Asia than in India, the form of the isobars on this day seeming to indicate that conditions in Upper India were largely affected, perhaps conditioned, by the movements of the low pressure area in the centre of Asia, and that hence the Himalayan range did not shut off from Upper India the consequences of meteorological changes in the regions lying to the north. By the 14th according to the Russian data, pressure had begun to rise slightly in the neighbourhood of Lake Baikal but was falling more briskly than ever to the north of Kashgar. (The large rise reported from Kashgar on this date is doubtful as falls, more or less rapid, were at the same time reported from stations both to the north and to the south of it). At the same time pressure was rising slightly over the greater part of North India and Kashmir. The distribution of pressure in India, consequently, remained practically unchanged, the defect of pressure shown at the foot of the Kumaon hills on the previous day having only slightly diminished.

By the 15th pressure had risen rapidly to very rapidly over the greater part of India, the rise being especially rapid in North India and in Kashmir. In consequence of this rise the depression at the foot of the Kumaon Hills disappeared, although according to the Russian data pressures were still falling in Central Asia. Hence although the depression had disappeared from the Indian region, it had by no means disappeared from Central Asia. By the 16th, however, pressure was rising generally in Central Asia although it had by then again begun to fall over India.

In the absence, however, of extended data for the Central Asian region, it is difficult to trace the meteorological changes which occurred there during this important period. The data, however, shew that they were extensive, large and exceedingly well-marked. During the whole of this period, it is interesting to observe anticyclonic conditions prevailed continuously over the continent of Europe and hence the disturbance was probably confined to the Central Asian region.

The following give briefly the more important features of the changes in the other meteorological elements during this period :—

(1) Temperature was low over the greater part of the Indo-Gangetic Plain from the 10th to the 12th, and especially low on the 11th in Chota Nagpur and South-West Bengal, the latter a consequence of general rainfall in that area during the previous day, as the first storm of the period passed east to Burma. Temperature rose over the head of the Peninsula on the 12th and 13th, as the depression, subsidiary to the Central Asian depression, developed at the foot of the Kumaon Hills, causing a flow of west winds across the head of the Peninsula and down the Gangetic Plain. This excess was, however, neither strongly marked nor lasting, for, by the 15th it had practically disappeared. Good general rain was received in North-East Bengal and Assam on the 13th and 14th, hence temperature in these areas was during these days in moderate general defect.

The temperature variations in other parts of India during the period call for no remark.

(2) Besides the rainfall already noted, occasional thunder-showers continued in the south of the Peninsula and Lower Burma, a result of the gradually increasing intensity of the thermal conditions over these areas.

At extra Indian stations the chief rainfall periods are shown in the following table :—

Baghdad	12th, 13th and 14th.
Ispahan	10th and 14th.
Teheran	14th.
Kabul	12th.
Bussrah	13th.

(3) The chief pressure changes during the period were probably conditioned by the pressure changes taking place in Central Asia and were less obviously oscillatory than those already noted during the first ten days of the month. It may be noted, however, that after the general rise during the 9th, 10th and 11th, there was an equally general fall on the 12th and 13th, followed by a general rise in India on the 14th and 15th.

Fourth period, 15th to 22nd The third Persian Depression.—The chief feature of the weather during this period was the development of a depression in the Persian area on the 17th and 18th and its subsequent advance towards Central Asia.

At the end of the previous period as the Central Asian depression moved off or filled up, pressure rose over the whole Indian area, the rise being most marked on the 15th, when it was rapid to very rapid at Kashgar, in Kashmir and also in Assam and Burma. On this date pressure was in very large excess in Burma and North-East India, the excess diminishing westwards from about ·150″ in Burma to about zero in Upper Sind. The effect of the disturbance described in the previous period had hence by this date passed off entirely from the Indian region.

On the 16th, the opposite phase began and pressure fell slightly but very generally over the whole Indian area, the fall being greatest in Baluchistan and North-West India. On the 17th and 18th pressure fell rapidly in Persia and by the 18th a well-marked centre of low pressure shewed in South-West Baluchistan and the area to the north of the Persian Gulf. The changes meanwhile in India were slight but generally downwards except in North-West India on the 17th, where duststorms had given some rain and cooled the air and led to a local increase of pressure. While the depression in Persia was developing, the continued fall of pressure over India led to the establishment of a large shallow area of low pressure over the greater part of the Central Provinces, Gujarat and Sind. On the 19th pressure rose generally in India and Persia, the rise being brisk in the latter area, but fell at Chitral and at other stations to the north. Cloud at the same time increased largely in that area and conditions generally seemed to indicate that the Persian disturbance had moved north-eastwards over Afghanistan to Central Asia.

By the 20th pressure had risen generally in India except in the centre of the Punjab where a large shallow low pressure area shewed. On this date pressure fell very rapidly in Kashmir, the fall being greatest at Leh, where pressure was in very large defect. On this date snowstorms were reported from some of the Kashmir stations. The much larger deficiency of pressure at the Kashmir stations than at the Punjab stations on this date makes it not improbable that the Persian disturbance had passed eastwards across the regions to the north of India and that the Punjab depression was merely a secondary whirl initiated by the primary disturbance as it advanced. The data for the North Himalayan region is, however, too scanty to enable this point to be determined with certainty.

On the 21st pressure rose rapidly in Kashmir, an indication that the primary depression had passed away. Meanwhile the secondary depression in the Punjab had developed and moved eastwards, and now showed over Allahabad where pressure was about one-seventh of an inch in defect.

By the 22nd it seemed to have passed into Assam where on that day pressure fell rapidly and readings were about one-seventh of an inch in defect.

At the same time pressure fell rapidly in North-West India as the fourth Persian storm of the month began to affect the Indian region and in consequence of the presence of both depressions, one affecting North-West India, the other North-East India, readings were very low over an extensive belt extending from Upper Sind eastwards to Bihar.

The weather of India, therefore, during this period was almost entirely conditioned by the movements of the storm which developed in the Persian region on the 17th and 18th, passed apparently first north-east and then east over the regions to the west and north of India, giving rise in its course to a subsidiary depression in the Punjab, which subsequently moved east to Assam.

The following gives the more important features of the other meteorological elements during the period :—

(1) Temperature was low throughout the period in North-East India, a result of the unusually heavy and persistent rainfall in that area; it was in moderate to considerable excess throughout the period over a tract extending from the head of the Peninsula westwards to Gujarat and Sind, and in moderate excess in North-West India on the 16th and 20th and in moderate defect during the remainder of the week. In other areas the variations were unimportant.

(2) The pressure variations from the normal were strongly marked throughout the period, being almost continuously positive in North-East and negative in North-West India. The pressure distribution favoured a strong indraught of southerly winds from the head of the Bay into Bengal and this current encountering the fairly well marked easterly movement down the Assam valley, which the relatively high pressures over Assam occasioned, established strongly marked contrasts of humidity and temperature at neighbouring stations and led to numerous thunderstorms and the unusually heavy rain which has been already remarked. As to the cause of the unusually high pressures over Assam and North-East India the absence of data for the Thibetan Plateau makes it impossible to do more than guess. It may have been due to the persistence or reappearance of the excessive pressures in East and Central Asia which characterized the meteorology of February, but in the absence of definite data such surmises are futile and only emphasize the need for extending the network of observing stations towards the north. These abnormal conditions were almost certainly not due to local causes, having their origin within India, and if their causes are to be sought outside India, the region to the north is the field which first invites exploration.

(3) Rain fell more or less generally in North-East India on every day of the period, the general cause being probably as given above, in (2). It was on the whole lightest on the 20th and 21st, days when the subsidiary depression

of the period was moving eastwards along the foot of the hills and causing a considerable indraught of winds towards the west from the whole of Bengal and thus diminishing the rush of humid winds from the head of the Bay to Assam and reducing the sharply marked contrasts of conditions which, as explained above, characterized the meteorology of the period in North Bengal and Assam. A few duststorms accompanied with light rain occurred in the North Punjab on the 17th and again on the 20th as the Persian depression passed eastwards to the north of that region. With the exception of this as also of the few thundershowers, which occurred in South India on the 17th, no rain fell in India outside Assam during the period.

Fifth period, 23rd to 30th. The fourth and fifth Persian depressions.—The fourth Persian depression was initiated during a period of falling barometer in the Persian area which lasted throughout the 21st and 22nd. Pressure was at the same time falling generally in the Indian region, the fall being especially brisk in North-West India. By the 23rd the reverse phase was initiated and a recovery of pressure had begun over the greater part of the Indian area and the adjacent seas as far south as Zanzibar in the west, and Singapore in the east, of the equatorial belt. Pressure continued to fall, however, in the central area of the depression which on the 23rd lay over the West Punjab, the defect at its centre then exceeding two tenths of an inch. The general rise continued on the 24th and was especially brisk in the North-East Punjab and in North-East India (an indication, possibly, that the rise was conditioned by actions in the Central Asia Plateau). This rise checked the development of the depression which consequently did not advance eastwards on this day, but remained in Upper Sind, the defect at its centre being onesixth of an inch. By the 25th the maximum phase of the oscillatory pressure changes seemed to have passed and pressure was giving way more or less rapidly in North-East India although still tending upwards over the West Coast and the Peninsula. This fall allowed the depression to advance and it now shewed near Mooltan with a defect of about one eighth of an inch at its centre. By the 26th the fall was very decided over the greater part of India and the depression now advanced very rapidly and shewed at 8 A.M. near Allahabad where readings were about onetenth of an inch below normal. By the 27th it had moved to North Bengal where and in Assam and Upper Burma pressure had fallen rapidly and was now ·150″ in defect. At this time pressure was rising briskly in the regions on the north and north-west of India, and by the morning of the 27th readings were almost a tenth of an inch in excess in Upper Sind. On the 28th pressures were rising rapidly to very rapidly in all parts of the monsoon area except in West Persia where pressure was falling rapidly and a large area of very uniform pressures was forming. The fall extended as far east as the North-West Frontier districts but was only slight there. It was greatest at Ispahan.

The rapid rise in North-East India on this day converted the defective readings of the previous day into readings more or less considerably above normal.

The rise continued on the 29th at all, except the Central Persian and the North-West Indian stations, where the fifth Persian depression of the month had now advanced to.

The tide, however, turned on the 30th and pressure fell generally over the greater part of India. The Persian depression continued its eastward advance and at 8 A.M. on the 30th was central near Sirsa where pressure was, relative to the general condition, in very considerable defect. The further course of this disturbance will be indicated in next month's review. The following are the main features of the other metecrological elements during the period.

(1) The temperature remained low throughout the period in North-East India for the same reasons as were noted as holding during the preceding period.

The temperature was in slight excess in North-West India from the 23rd to the 25th and thereafter fell rapidly as the fourth Persian depression on that day passed eastwards and gradients for cool north winds were established over the Punjab. Low temperatures held in that area from the 26th to the 29th, in point of fact, till the advance of the fifth Persian depression brought cloud and a rush of southerly winds into that area. The excess of temperature was greatest on the 30th at Jacobabad where the minimum temperature was 15° above normal. Temperatures averaging 4° above normal held over the West Deccan from the 26th to the end of the month.

(2) The features of the pressure anomalies which characterized the previous period persisted also throughout this, *viz.*, a persistent relative excess of pressure over North-East India and a persistent defect in North-West India. These conditions were only temporarily affected by the movements of the two depressions of the period and remained unchanged throughout, except in so far as they were affected by the mere superposition of the changes due to the advance of the depressions.

(3) The rainfall of the period was confined to the line of the Himalayas; it persisted throughout the period in North-East India but in the remainder of the Himalayan region was confined to the 24th, 25th and 26th, *i.e.*, to the period of the passage of the fourth Persian depression. During this period rain fell at the Extra Indian stations to the north and west as below:—

Station.	Date of occurrence of precipitation.
Kabul	23rd and 24th.
Parachinar	22nd and 25th.
Chitral	22nd and 25th.
Meshed	22nd and 25th.
Kila Drosh	23rd and 25th.
Gilgit	24th and 26th.
Kashgar	25th.
Bussrah	28th and 29th.
Ispahan	29th.

Pressure.—The mean pressure over the Indian land area was in April 0·002″ above the normal. Relatively to the general condition, pressure was in considerable excess in North-East India, the positive anomaly exceeding ·040″ at the foot of the Darjeeling Himalayas and in Upper Burma

Presssure was in relative defect over the whole of the Punjab, Sind, Gujarat, Khandesh, the Central Provinces and the greater part of the United Provinces. The negative anomalies were, however, moderate over the greater part of the area and exceeded ·020″ only in Sind, Rajputana and the south and south-west of the Punjab.

The mean vertical anomalies of the month were in general small, except in the Sikkim Himalayas where they were large and negative, a result probably of the abnormally low temperatures in North Bengal and consequent excess of pressure at the level of the plains stations, relatively to that at the level of the neighbouring hills.

The following table gives the mean pressure variations and anomalies of the month for the eleven meteorological provinces of India:—

Meteorological Province.	Variation from normal of mean 8 A.M. pressure of April 1902.	Pressure anomaly, April 1902.
	″	″
Burma Coast and Bay Islands	+·014	+·012
Burma Inland	+·045	+·043
Assam	+·039	+·037
Bengal and Orissa	+·022	+·020
Gangetic Plain and Chota Nagpur	−·002	−·004
Upper Sub-Himalayas	−·013	−·015
North-West Frontier Province, Indus Valley and North-West Rajputana	−·023	−·025
East Rajputana, Central India and Gujarat	−·018	−·020
Deccan	−·008	−·010
West Coast	+·005	+·003
South India	+·007	+·005

Temperature.—The mean maximum temperature of the month was in moderate to considerable defect in North-East India and in moderate excess over Upper Sind but varied little from normal over the remainder of the country.

The defect was about 6° in Central Bengal and averaged about 3° over North-East India generally. Slightly defective values were shewn over the greater part of the Indo-Gangetic Plain and the hill and submontane regions as far west as Rawalpindi, slightly excessive values being reported from the east of the United Provinces. The excess in Upper Sind averaged slightly under 2°·5.

The variations from normal of the mean minima values were generally similar to the variations of the maxima already noted. Defects shewed in North-East India and excesses of 2° and upwards over Sind, Khandesh and the west of the Central Provinces and locally at Lahore, Sialkot, Diamond Island and Bassein. The values over other parts of the country differed little from normal. The defects of the minima readings in North-East India were, however, much less marked than the defects of the maxima readings, exceeding 2° only in Deltaic and East Bengal and averaging about 2·5° over that area. On the other hand, the excesses of the minima readings in Sind and Rajputana were much larger than were the excesses of the maxima records. They equalled or exceeded 4° at Kurrachee, Deesa and Pachpadra.

The variations in the mean temperature of the month accordingly exhibited similar characteristics, *viz.*, moderate to considerable excesses in Sind and moderate to considerable defects in North-East India, the variation of the mean exceeding + 4° at Kurrachee and exceeding −4° in North Bengal. In other parts of India the variations of the mean temperature were unimportant.

The following table gives variation data of the month for the eleven meteorological provinces:—

Meteorological Province.	Variation of Actual from Normal of		
	Mean maximum temperature, April 1902.	Mean minimum temperature, April 1902.	Mean daily temperature April 1902.
	°	°	°
Burma Coast and Bay Islands	+0·2	+0·7	+0·5
Burma Inland	−1·4	−0·1	−0·8
Assam	−4·3	−2·1	−3·2
Bengal and Orissa	−3·9	−1·4	−2·7
Gangetic Plain and Chota Nagpur	−0·9	0	−0·4
Upper Sub-Himalayas	−1·1	+0·4	−0·4
North-West Frontier Province, Indus Valley and North-West Rajputana.	+1·3	+1·9	+1·6
East Rajputana, Central India and Gujarat.	+0·4	+2·9	+1·7
Deccan	+0·4	+1·7	+1·1
West Coast	+0·8	+1·2	+1·0
South India	+0·4	+1·2	+0·8

Winds.—Winds were stronger and steadier than usual in Bengal and somewhat less westerly than usual at Saugor Island. They were also unusually steady in Bihar with increased easting, but weaker and more unsteady than usual in North-Western India, excepting the hill districts. They were more vigorous with greater westing than usual in Berar, the Central Provinces and the West Deccan.

Humidity.—The air was much damper than usual in North-East India and somewhat drier than usual in the Upper Sub-Himalayas. The variations in other parts of India were unimportant. The excess was more than 10 per cent. in North Bihar, and averaged 6 per cent. in the Gangetic Plain and Chota Nagpur. The defect was 5 per cent. in the Upper Sub-Himalayas and 4 per cent. in the Burma Coast and Bay Islands. The variations elsewhere call for no remark. It may be noted, however, that in the North-West Frontier Province, Indus Valley and North-West Rajputana, as also in the Gangetic Plain and Chota Nagpur, the aqueous vapour pressure was from 17 to 18 per cent. higher than usual. The abnormally high temperatures in the first two areas, however, kept the relative humidity about normal.

The aqueous vapour pressure was about 5 per cent. higher than usual in South India and the relative humidity about 2 per cent. above normal.

The following table gives the monthly mean variation

data for the aqueous vapour pressure and mean humidity of nine of the meteorological provinces of India:—

Meteorological Province.	Mean Absolute Humidity.		Mean Relative Humidity.	
	Average actual, April 1902.	Variation of actual from normal, April 1902.	Average actual, April 1902.	Variation of actual from normal, April 1902.
	"	"	%	
Burma Coast and Bay Islands.	·857	+·005	70	— 4
Bengal and Orissa . .	·861	—·001	77	+ 1
Gangetic Plain and Chota Nagpur.	·495	+·076	43	+ 6
Upper Sub-Himalayas .	·311	—·055	33	— 5
North-West Frontier Province, Indus Valley and North-West Rajputana.	·587	+·085	52	+ 1
East Rajputana, Central India and Gujarat.	·347	+·005	27	— 1
Deccan	·367	—·008	30	— 1
West Coast . . .	·861	+·037	74	0
South India . . .	·657	+·033	61	+ 2

Cloud.—The mean cloud amount was in large excess in the extreme south of the Peninsula and in Bengal and Chota Nagpur and in large defect over the Konkan, the Bombay Deccan and Berar. Cloud was in moderate excess over the greater part of Northern India, Sind and Rajputana as also in the east of the Central Provinces and the Gangetic Plain (East) and in moderate defect over Lower Burma and the Bay Islands.

The following table gives variation data of the mean cloud amount of nine of the meteorological provinces for the month:—

Meteorological Province.	Mean cloud amount.	
	Average actual, April 1902.	Variation of actual from normal, April 1902.
Burma Coast and Bay Islands. . . .	3·4	—0·1
Bengal and Orissa	5·6	+1·9
Gangetic Plain and Chota Nagpur . . .	3·2	+1·4
Upper Sub-Himalayas	3·3	+0·9
North-West Frontier Province, Indus Valley and North-West Rajputana.	3·4	+0·5
East Rajputana, Central India and Gujarat .	2·7	+0·7
Deccan	2·2	—0·4
West Coast	1·2	—1·2
South India	5·2	+1·3

Rainfall.—The rainfall of the month was heaviest in East Bengal and the Surma Valley and in the latter area exceeded 20 inches. In Eastern Bengal it was over three times as heavy as usual while in the Surma Valley it was over 50 per cent. in excess. From this area the total amount of the rainfall diminished south-eastwards to about zero in the Burma Dry area and westwards to about zero in the United Provinces and the Central Provinces. Moderate falls were received in the Upper Sub-Himalayas, where amounts of rainfall half as much again as usual were received. The totals in the Upper India Hills ranged from about a quarter of an inch in Baluchistan and two to three inches in the Simla and Mussooree Hills, to over four inches in the Murree Hills and over ten inches at Sonemarg in Kashmir. Moderate amounts were also received in South India, the falls ranging from nearly ten inches at Colombo and three to four inches in Mysore, to one to two inches on the Malabar Coast and under one inch in the centre of the Deccan. Total amounts ranging from 1½ to 4½ inches were received in Lower Burma.

The falls were excessive in Assam, Bengal and Orissa, the Gangetic Plain and Chota Nagpur, and in the Upper Sub-Himalayas and were in defect from normal elsewhere. The excess was greatest in Bengal and Orissa where the falls averaged 2½ times the normal, the excess was 45 or 50 per cent. of normal in Assam and the Upper Sub-Himalayas and only 11 per cent. in the Gangetic Plain and Chota Nagpur. On the other hand, the defect was greatest in the Indus Valley, North-West Rajputana and the West Coast where only one-fourth of the normal fall was obtained. In the Burma Coast and Bay Islands, as also in South India, the Deccan, Gujarat, Central India and East Rajputana, only about two-thirds of the normal amounts fell. In Burma Inland the fall averaged slightly less than usual.

The following gives comparative rainfall data of the eleven meteorological provinces for the month:—

Meteorological Province.	Rainfall.			
	Mean actual for April 1902.	Mean normal for April.	Variation of actual from normal, April 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands.	1·75	2·92	—1·17	—40
Burma Inland . .	1·15	1·25	—0·10	— 8
Assam	12·54	9·28	+4·15	+45
Bengal and Orissa .	6·77	2·65	+4·12	+155
Gangetic Plain and Chota Nagpur.	0·49	0·44	+0·05	+11
Upper Sub-Himalayas .	0·73	0·52	+0·26*	+50
North-West Frontier Province, Indus Valley and North-West Rajputana.	0·09	0·36	—0·27	—75
East Rajputana, Central India and Gujarat.	0·04	0·06	—0·02	—33
Deccan	0·33	0·51	—0·19*	—37
West Coast . . .	0·53	2·00	—1·47	—74
South India . . .	0·88	1·42	—0·54	—38

* A reference to Table I will show that the means in columns 2 and 3 are derived from a smaller number of stations than the means in the first column. The sum of the figures in columns 2 and 3, therefore, does not agree with that of the figures in column 1.

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Atmospheric Pressure.

The mean 8 A.M. pressure of the whole of India averaged ·002″ above the normal of the month, a rise of ·017″ from March relatively to the normal pressure conditions of the period, pressure in March having been ·015″ in defect. The local pressure conditions or anomalies were very similar to those of the previous month.

Pressure was, relatively to the general condition, in local excess (*i.e.*, the pressure anomalies were positive) in North-Eastern India, Burma, Madras, Mysore, the South Konkan and the neighbouring districts of the Bombay Deccan and in relative defect over the remainder of the country. The excess was largest in North and East Bengal, Assam and Central and Upper Burma and exceeded ·040″ in amount at the stations for which data are given below :—

STATION.	Variation from normal of mean 8 A.M. pressure of April 1902.	Pressure anomaly, April 1902.
	″	″
Mandalay	+·059	+·057
Kindat	+·057	+·055
Bhamo	+·045	+·043
Purnea	+·044	+·042
Jalpaiguri	+·043	+·041

The negative anomalies were generally small in amount but exceeded ·02″ in the area defined by the following stations :—

STATION.	Variation from normal of mean 8 A.M. pressure of April 1902.	Pressure anomaly, April 1902.
	″	″
Ajmer	—·036	—·038
Deesa	—·035	—·037
Jacobabad	—·032	—·034
Bikaner	—·031	—·033
Sirsa	—·028	—·030
Mooltan	—·028	—·030
Bhavnagar Para	—·027	—·029
Hyderabad (Sind)	—·024	—·026
Kurrachee	—·020	—·022
Rajkot	—·020	—·022
Agra	—·020	—·022
Dera Ismail Khan	—·020	—·022
Jaipur	—·019	—·021

The low pressure conditions in North-Western India extended westwards into Persia and Arabia, pressure being ·077″ in defect at Baghdad, ·063″, at Jask and ·023″, at Aden.

Pressure was generally in defect at the level of the hill stations in North-Western and Central India, but the variations were small and differed little in amount from those of the neighbouring plains stations. Pressure was, on the other hand, in large defect, relatively to the neighbouring plains stations, in the Sikkim Himalayas as represented by Darjeeling.

The vertical anomalies were very small in amount and of little significance except in the case of Leh and Lahore, (—·020″), Jacobabad and Quetta (+·029″) and Darjeeling and Dhubri (—·062″).

The following data illustrate these features :—

HILL STATION.	Variation from normal of mean 8 A.M. pressure in April 1902.	PLAIN STATION.	Variation from normal of mean 8 A.M. pressure in April 1902.	Vertical pressure anomaly (Hill—Plain).
	″		″	″
Leh	—·033	Lahore	—·013	—·020
Quetta	—·003	Jacobabad	—·032	+·029
Murree	—·011	Peshawar	—·011	0
Simla	—·006	Ludhiana	—·015	+·009
Chakrata	—·017	Roorkee	—·008	—·009
Ranikhet	0	Bareilly	—·005	+·005
Darjeeling	—·022	Dhubri	+·040	—·062
Mount Abu	—·026	Deesa	—·035	+·009
Pachmarhi	—·017	Seoni	—·018	+·001

The preceding data establish that there were no marked abnormal features in the pressure conditions obtaining during the month in the middle and upper atmospheric strata except in the Sikkim Himalayas where at the level of Darjeeling pressure was in large defect as compared with the neighbouring plains. The abnormal deficiency at Darjeeling was, it may be noted, probably a result of decreased temperature and increased pressure in the plains. A reference to the Weather Reviews for the previous three months will show that the vertical anomalies were positive and moderate to large throughout the period January to March, being of the type invariably associated with drier and finer weather than usual in North-Western India during the cold season. In April, on the other hand, they were not only small in amount but were in some cases also inverse in character to those of the previous three months, an indication that the abnormal pressure conditions accompanying the exceptionally dry weather of the

cold season were passing away. The change is shown by the following data:—

PAIR OF STATIONS.	VERTICAL PRESSURE ANOMALY (HILL-PLAIN).			
	Jan. 1902.	Feb. 1902.	Mar. 1902.	Apl. 1902
	"	"	"	"
Leh-Lahore	+·115	+·065	+·014	—·02
Quetta-Jacobabad . . .	+·086	+·060	+·048	+·029
Murree-Peshawar . . .	+·067	+·058	+·030	0
Simla-Ludhiana . . .	+·047	+·034	+·038	+·009
Chakrata-Roorkee . . .	+·019	+·012	+·023	—·009
Ranikhet-Bareilly . . .	+·027	+·016	+·029	+·005
Darjeeling-Dhubri . . .	+·035	...	...	—·062

The variations of pressure from the normal were generally small at the stations in the south-east trades region" except at Mauritius where there was a deficiency of ·012".

The standard weather charts of Australasia for April issued by the Chief Weather Bureau, Brisbane, show that pressure was largely in excess of the normal at Perth and Adelaide. It is hence almost certain that the pressure conditions were very abnormal in the area between Cape Colony and Australia, the causes of which, in the absence of definite information, can be only surmised.

The following is a summary of the chief abnormal features of the pressure distribution of the month:—

(1) Pressure was in very slight general excess in the Indian area on the mean of the month.

(2) Pressure was, relatively to the general state, in defect in North-Western and Central India and the North Deccan, the deficiency being most marked in Sind, Gujarat, Rajputana and the southern half of the Punjab where it ranged between ·021" and ·038".

(3) Pressure was in local excess in North-Eastern India, Burma and the Peninsula to the south of Latitude 18°N, the excess being greatest in North Bengal and Upper Burma (where it varied from ·041" at Jalpaiguri to ·057" at Mandalay).

(4) The distribution of pressure in the vertical direction was approximately normal in North-Western and Central India. Conditions were, on the other hand, abnormal in the Sikkim Himalayas, pressure being in large defect at Darjeeling, relatively to the adjacent plains.

(5) Pressure was in defect at Mauritius and in large excess at Perth and Adelaide, indicating that conditions were very abnormal in the South Indian Ocean.

Barometric depressions and cyclonic storms of the month.

The month of April was unusually disturbed. The rainfall of the month was much above the normal over the greater part of North-Eastern India and the hill and submontane districts of North-Western India. In some parts of Bengal the rainfall of the month was from three to five times the normal of the month. This exceptionally heavy precipitation in North-Eastern India was caused chiefly by a succession of storms of the cold weather type which passed into that area from Upper India or from the highlands of Baluchistan and Persia. Weather was more or less unsettled in the Western Himalayas during the greater part of the month and frequent falls of snow occurred on the interior ranges, chiefly in Kashmir.

At the commencement of the month two shallow depressions were affecting the weather in Northern India, one lying over the South Punjab and the other over the eastern districts of the Gangetic Plain. The former, which was of no importance, filled up during the next 48 hours. The latter (apparently the continuation of the depression shown over Sind at the end of the previous month), on the other hand, advanced through Chota Nagpur and the adjacent districts on the 2nd into Upper and Central Burma on the 3rd. It was, however, very faintly marked in the pressure chart of the 3rd and either filled up completely or passed out of the Indian region during that day. The disturbance gave fairly general rain in Bengal and Assam on the 2nd. Whilst the preceding storm was passing through North-Eastern India important changes were in progress in Persia. A shallow depression formed in West Persia on the 1st or 2nd which drifting eastwards as a low pressure belt or trough passed across the North-West Frontier into Sind during the afternoon of the 5th. It was probably passing through Rajputana at 8 A.M. of the 6th but was completely obscured by a secondary depression which had formed rapidly in the Central Punjab.

Pressure increased to a moderate extent in Upper India during the next 24 hours and the secondary depression filled up as rapidly as it had formed, so that there was only a very slight residual depression shown in the Punjab at 8 A.M. of the 7th. The double disturbance gave some rain in Baluchistan and the submontane and hill districts of Upper India and snow on the interior ranges of Kashmir

The primary or original depression passed through the United Provinces on the 7th, Chota Nagpur on the 8th and (perhaps) Upper Burma on the 9th. The disturbance gave much cloud in the Gangetic Plain and thunderstorms in Bengal, Assam and Upper Burma, chiefly on the 9th.

A brisk fall of pressure on the 7th and 8th in Sind and the adjoining districts of Rajputana initiated a depression in that area. The disturbance marched eastwards across the Central India Plateau and East Satpuras on the 10th and passed into Orissa and the north-west angle of the Bay on the 11th. Showers were received in Kashmir and the hill and submontane districts of Upper India on the 8th and 9th and moderate rain in the east of the Central Provinces. Orissa and Lower Bengal on the 11th.

The disappearance of the preceding depression was followed by the appearance of another shallow disturbance in the South-East Punjab on the 12th. It drifted eastwards

through the central districts of the United Provinces on the 13th, and Bihar on the 14th, and passed into West Bengal on the 15th where it disappeared completely during the next 24 hours. It gave moderate snow in Kashmir and some thunder showers in the North Punjab on the 12th. Like the previous depressions it had a marked effect on the weather in Bengal where numerous thunder storms occurred on the 14th and 15th.

Whilst this depression was filling up the fifth storm of the month began to form in Persia. It passed through Baluchistan into Upper Sind on the 15th and 16th and thereafter advanced eastwards into Bundelkhand, Baghelkhand and the neighbouring districts of the Central Provinces. It remained stationary in that area during the 17th and 18th, at the same time filling up, and disappeared completely during the 19th. The disturbance did not affect the weather appreciably in Upper and Central India, but on the other hand, occasioned a moderate burst of rain in North-Eastern India.

The following table gives the most noteworthy falls :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Noakhali	Noakhali	17th	3·50
Angul	Dhenkanal	,,	3·18
Cachar	Mahur Saddle	18th	4·16
Puri	Kanas	,,	3·98
Dacca	Munshiganj	19th	4·04
	Dacca	,,	3·36
Tippera	Comilla	,,	3·85
Sylhet	Maulvi Bazar	20th	3·31

The weather of the last ten days of the month in Northern India was chiefly conditioned by the formation and movements of three depressions. The first of the three (the sixth of the month) originated in the Punjab on the afternoon of the 19th and drifting in an east-south-east direction passed through the United Provinces on the 21st into Assam on the 22nd where it disappeared during the next 24 hours. This disturbance gave duststorms with rain in the submontane districts of the Punjab, thunder showers in the adjacent hills and moderate snowfall on the higher ranges of Kashmir. Bengal and Assam were visited by a series of thunder storms from the 21st to the 23rd which gave fairly general and moderately heavy rain.

The following were the most noteworthy falls registered during this period :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Backergunge	Bauphal	21st	3·60
Jalpaiguri	Baxa	,,	3·42
Chittagong	Kutubdia	,,	3·40
Goalpara	Bijni	,,	3·03
Tippera	Kasba	22nd	5·61
Noakhali	Hatya	,,	4·82
Chittagong	Cox's Bazar	,,	4·56
Backergunge	Daulatkhan	,,	4·18
Cachar	Mahur Saddle	,,	4·41
Tippera	Laksam	23rd	3·80
Jalpaiguri	Bhagatpur	24th	3·80
Manipur	Aijal	,,	3·35
Dacca	Narayanganj	,,	3·22
Tippera	Comilla	,,	3·18

The second depression of the series (the seventh of the month) formed very rapidly in the Punjab and Upper Sind during the 22nd and on the morning of the 23rd showed as an elongated belt of low pressure extending from Baluchistan to the East Punjab. It was a disturbance of moderate intensity, pressure being upwards of a fifth of an inch below the normal in the central area. It filled up slightly with little change of position during the next two days but began to move eastwards on the 25th and lay over the United Provinces on the 26th and over Bihar on the 27th. It was apparently displaced southwards to Chota Nagpur and the east of the Central Provinces on the 28th and filled up in that area during the 29th. It gave moderate rain over the submontane districts of Upper India and the lower ranges of the Western Himalayas, Chitral and Afghanistan and moderately heavy snow on the higher ranges. Numerous thunderstorms occurred in Bengal, chiefly in the eastern and northern districts between the 26th and the 29th.

The last disturbance of the series (the eighth of the month) appeared in Upper Sind on the 29th. It marched eastwards across the South-East Punjab and broke up in the Simla and Mussooree hills on the 1st of May. It gave much cloud but no rain in Upper India.

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Wana.*—No snow fell during the month.

The snowfall during the past winter was lighter than usual and the weather unusually warm.

(2) *Hills west of Kohat.*—No snow fell on the Kohat border during the month.

(3) *Kila Drosh.*—Slight snow fell on the surrounding hills on the 6th, 10th, 11th, 16th, 19th and 24th. The falls were throughout the winter exceptionally slight, although a little more numerous than usual. The season was exceptionally mild throughout. Mails were delayed only once, the Lowari Pass being always open.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Leh.*—Feeble snowstorms occurred on the 10th, 13th, 21st and 24th to the 26th and a hailstorm on the 8th. The weather during the month was reported as variable.

The hailstorm on the evening of the 8th is noteworthy as hail seldom falls at Leh. On two or three evenings distant lightning was seen, a rare thing in Ladakh.

At the end of the month snow was lying in the Indus Valley at Leh down to about 13,000 feet on the north sides of the hills and to about 14,500 feet on the south faces.

In the second week of April Dr. Sven Hedin crossed the Chang La Pass in safety, though there was still a considerable amount of snow on it. The Diger La, near Leh, was said to be "passable for men and yaks when the sky is clear (*i.e.*, when the snow is hard frozen), but not for horses."

(2) *Simla Hill Districts.*—Light snow fell on the 6th, 7th, 11th to 13th, 17th, 20th and 23rd to 25th. The snow line descended to 9,000 feet during the storm of the 7th. The storms were brought up by south-west winds. 3·87 inches of rain fell at Kilba during the month. At the end of the month there was an accumulation of about 13 feet on the Bulder Pass, of about 12 feet on the Rupin and Burin Passes and of 10 feet on the Shatul Pass.

The snowfall of the season was considered to be much below the average, notwithstanding the unusually heavy falls on elevations above 10,000 feet during April.

(3) *Chamba.*—The Deputy Conservator of Forests, Chamba Division, writing on the 10th of May, says: "The snowfalls in Pangi were exceptionally slight as compared with those in previous years. Heavy falls of snow seem to have occurred on the higher hills during March and April". Again, on the 21st May, he writes,—"There is no snow accumulation at any of the observing stations. Crops on the whole are not in good condition for want of rain".

(4) *Kulu.*—Rain fell on fourteen days in the Kulu tahsil and on eleven days in the Plach tahsil. On these occasions light snow fell on the higher passes and peaks. Hailstorms on the 24th and 25th did some damage to the poppy crop in the Kulu tahsil.

The snowfall of the past winter was much less than usual and almost all the passes in the subdivision were open for traffic before the end of the month.

The following table gives the depth of snow at the end of each month from January to April 1902 and also on the 25th of April of the past eleven years on seven of the passes in this district for comparison:—

Tahsil.	Name of pass.	Elevation.	Depth of snow in				Mean April past 10-11 years.	Depth of snow on the 25th April.									
			January 1902.	February 1902.	March 1902.	April 1902.		1901.	1900.	1899.	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
		Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
Kulu	Hamta	14,500	2	7	6	3	5¾	2	6	3	0	11	9	4	10	11	2½	?
	Rotang	13,000	4	10	12	10	11¼	6	28	7	3	11	16	13	13	13	3	10
	Bhubhu	10,000	1	2	1	*Nil*	2½	4	2	2	0	2	½	3	2	5	?	5
Plach	Gargarasan	17,000	2	2	2	1	7¾	6	4	3	2	7	1	10	8	25	?	12
	Srikhand	15,000	3	7	6	5	14¼	10	11	6	6	15	8	15	15	30	6	36
	Basleo	11,000	1	1	1½	*Nil*	3½	4	2	1	0	3	0	4	3	15	?	4
	Jalori	10,500	1	1	1½	*Nil*	3¾	4	2	1	0	3	0	4	4	6	?	4

III.—UNITED PROVINCES HIMALAYAS.

(1) *Almora.*

Malla Johar.—Snow fell as given below :—

7th	. . . . .	4 feet.
8th	. . . . .	4 "
25th	. . . . .	2 "
26th	. . . . .	4 "
	TOTAL .	14 feet.

This was the depth of snow on the peak of Utamdhura.

Malla Danpur—

25th and 26th	. . . . .	6 inches.

This was the depth of snow on the peaks of Pindari, Kaphini and Kantela.

Byáns, Chandas and Darma—

8th	. . . . .	½ foot.
24th	. . . . .	½ "
25th	. . . . .	1 "
	TOTAL .	2 feet.

This was the depth of snow on Byans, Chandas and Darma.

(2) *Garhwal.*—There were occasional light falls of snow in the region of the perpetual snows.

IV.—ASSAM HIMALAYAS AND UPPER BURMA.

Mr. Wright of the Choukpazat Gold Mining Company, Limited, Upper Burma, writes on the 16th May that "up to the 10th April there was no rain in appreciable quantities at the sources of the Irrawaddy and if there was snow it did not melt. About the 17th April there must have been heavy rain up north as the river rose to an unprecedented height." He also reports "all the information available and my experience show this to have been the coolest season, from March till now, experienced since 1893, highest daily temperatures having been on an average 5° to 10° lower than usual. The rains have now set in gradually."

Summary of Special Storm Reports.

The following gives the chief local storms of which reports have been received. Three of the storms, *viz.*, the hailstorm in the Jessore district on the 18th and the nor'-westers or tornadoes at Calcutta and Narayanganj on the evening of the 23rd were apparently of exceptional violence and did much damage to property :—

1st April:—Duststorm at Srinagar at 6 P M.

Duststorm at Nagpur at 10 P.M.

2nd April:—Thunderstorm at Belgaum from 5 P.M. to 11 P.M. It came from the south or south-south-west. The strongest winds during the storm blew with a velocity of thirty miles per hour.

Duststorm at Srinagar at 7 P.M.

3rd April:—Thunderstorm at Khandwa at 9 P.M.

4th April:—Nor'wester at Burdwan at 6-20 P.M.

Thunderstorm at Khandwa at 9 P.M.

Thunderstorm with rain at Hoshangabad at 11 P.M. It came from the north-east.

5th April:—Thunderstorm with hail at Belgaum from 2-10 P.M. to 5 P.M. It is said to have extended over a distance of four miles to the north-west and of two miles to the south of Belgaum.

6th April:—A heavy squall passed over Srinagar between 4 and 5 P.M.

Violent duststorm at Jacobabad at 4-10 P.M. It came from the west and lasted 25 minutes. Wind blew at the rate of thirty miles an hour during the storm.

7th April.—Duststorm at Allahabad at 3-10 P.M.

Thunderstorm with rain at Roorkee at 11-15 P.M. It came from the north-west and lasted an hour and a half.

10th April:—Violent duststorm at Jask between 4 and 5 P.M. The winds accompanying the storm were of sufficient violence to tear away one of the cups of the observatory anemometer.

Severe nor'wester at Burdwan from 3-30 P.M. to 3-45 P.M.

13th April:—Severe nor'wester at Burdwan lasting from 5-45 to 5-55 P.M. 1·46 inches of rain fell during the storm. Some damage was done to mangoe trees and houses by the strong winds accompanying the storm.

17th April:—Severe duststorm with rain at Hoshangabad at 4-30 P.M. It came from the north-east and lasted fifteen minutes.

Thunderstorm at Srinagar from 5 to 7 P.M.

18th April:—The following account of a hailstorm in the Jessore district appeared in the *Civil and Military Gazette* of the 23rd April :—

"Two days ago we had the most extraordinary fall of hail ever seen in these parts. The lumps were as large as one's fist, and one extra large one was found to weigh almost one and a half seers. My verandahs, which at my Kutcherry are made of tin, are all perforated, and one of my coolies going to the local *hut* was killed on the spot by receiving one of these mighty stones on his head. Cattle have been wounded, and trees badly knocked about. The thunder and lightning were alarming."

19th April—Thunderstorm at Srinagar. It came from the south-south-west and lasted from 6 to 8 P.M.

20th April:—Thunderstorm with rain at Srinagar. It began at 3-50 P.M. and continued until 7 P.M.

23rd April.—Severe thunderstorm at Jessore at 7 P.M. It came from the south-west and is said to have caused much destruction of property.

According to a newspaper report, Calcutta and Narayanganj were visite by a violent nor'wester or tornado on the afternoon of the 23rd. The following extract from the *Pioneer* of the 26th April shews the intensity of the storm:—

"The storm here on Wednesday broke the electric wire at Ballyganj. A horse trod on it and was instantly killed. The storm was not, however, of a local character, though the damage done was trifling. News has been received of the wrecking of Messrs. Macneill and Co.'s extensive godowns at Narainganj, where the storm took the form of a tornado. The details to hand are meagre. The whole of the godowns consisting of eight bays are down and five are practically demolished. The roofs are off the rest. The r esult is that over 20,000 bales of jute are lying exposed to the weather. A bungalow alongside also suffered severely. All the trees in the vicinity are uprooted. Dacca was swept by a violent tornado on Wednesday afternoon. The jute godowns and presses belonging to Mr. Nahapiet, an Armenian resident, were demolished. The new godown built on the river bank was also destroyed. Telegraph-posts, trees, corrugated roofs and houses were carried away long distances. Two durwans were killed by the falling debris and several persons injured. The damage done to property is estimated to exceed a lakh of rupees."

24th April:—Thunderstorm at Simla lasting from 7 to 7-30 A.M. It came up from the south-west.

Duststorm from east-north-east at Allahabad from 7 P.M. to 10 P.M.

25th April:—Thunderstorm from west at Simla lasting from 3-30 A.M. to 4-15 A.M. It was followed by a second storm from the south-west at 10-30 P.M.

The following gives a brief account of the more important hailstorms during the month of which reports have been received from district officers or other local authorities:—

1st April:—Hailstorm at Cherra and the neighbouring villages in the Khasi and Jaintia Hills from 8-30 to 8-40 P.M. It came from the north and was not severe. The largest stones were of the size of a small pea.

3rd April:—Hailstorm in four villages of Sailana (Malwa). It lasted about half an hour and damaged the wheat crop slightly.

4th April:—Hailstorm of moderate intensity at Sirsi in the Kanara district at 4 P.M. The largest stones were of the size of a pea.

Hailstorm at Sitaman (Malwa). The hailstones were of the size of a gram.

6th April:—Slight hailstorm at Jowai in the Khasi and Jaintia Hills from 3-40 P.M. to 4-10 P.M. It came from the west. The largest stones were of the size of a bullet.

7th April:—Hailstorm at Jowai from the west at 4-20 P.M. The hailstones were of the size of a pea.

8th April:—Hailstorm at Kapaguda in the Vizagapatam district from 3 P. M. to 3-10 P. M.

10th April:—Hailstorm at Pottanghi in the district of Vizagapatam.

16th April:—Hailstorm of moderate intensity over an area of about 110 square miles in the Dharwar district. The largest stones measured about an inch in diameter. The storm lasted from 7-40 P.M. to 8-20 P.M.

Hailstorm over an area of 20 square miles in the Bankapur taluka of the Dharwar district. The storm came from the north-east and continued from 5 P.M. to 5-30 P. M.

22nd April:—Hailstorm in the Namtidal tahsil of the Sibsagar district. It was moderately severe and came from the north-west. The largest stones were of the size of a plum. The strong winds accompanying the storm blew down some trees and four houses. The storm also did some injury to the tobacco and betel crops.

27th April.—Hailstorm over an area of about 40 square miles in the Gadag subdivision of the Dharwar district between 7 and 8 P.M. The largest stones measured about a third of an inch in diameter.

Slight hailstorm in the 18 villages of the Roha tahsil of the Nowgong district (Assam). The storm came from the west and lasted about 10 minutes. The hailstones were about an inch in diameter and inflicted some slight injury on the tobacco and betel crops.

The following reports of earthquakes during the month have been received:—

18th April:—Earthquake at Lahore at 2-5 A.M.

Severe earthquake shock at Srinagar at 2-45 A.M. The tremor came from the west and lasted about a minute.

Earthquake at Dras from 3-30 to 3-32 A.M.

Very severe shocks were experienced at Patiala at 2-30 A.M. They seemed to advance from north-north-west.

25th April:—Earthquake at Deesa at 9-3 P.M. lasting about six seconds. The wave apparently passed from north-east to south-west.

Brief Summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—The air movement over this area was not marked by any large or persistent abnormal features. It was somewhat above its normal strength on the 9th, 12th, 15th, 16th and from the 21st to the 25th and lighter than usual on most of the other days of the month. The mean air movement of the month for the whole of the Arabian Sea was 2·6 or only 0·1 below the normal. Weather was fine and settled throughout the month except off the Malabar and West Ceylon coasts where it was feebly disturbed with squalls and rain on the 2nd, 3rd, 6th, 7th, 11th to 13th, 18th to 21st, 29th and 30th. The squalls were on the whole most frequent and severe on the last two days when light to strong south-west winds obtained in that area. Occasional rain squalls were also experienced in the Persian Gulf on the 13th, 15th and 21st.

Bay of Bengal.—The air movement over this area differed from the normal in the following respects:—

(1) Winds had less westing and hence blew much more directly from the south than usual at the head of the Bay.

(2) They were very unsteady along the Pegu, Tenasserim and South Madras coasts.

(3) Along the North Coromandel coast the easterly element in the direction of the wind was not so strong as usual and the direction was consequently more southerly than usual.

(4) Winds were very light during the greater part of the first half of the month and stronger than usual during the second half with the result that, on the mean of the month, the air movement over the Bay was of normal intensity.

(5) Over the southern half of the Bay the weather was unusually quiet and settled but in the north it was more disturbed than usual.

At the end of the month a temporary advance of humid winds was apparently taking place in the extreme south of the Bay.

Equatorial Belt.—The information available for this region is as usual very scanty. It, however, shows that the usual belt of light variable winds and calms occupied a much more southerly position than it ordinarily does in April, an indication that the South-East Trade winds not only did not extend as far to the north as usual but were probably also below their normal strength. These abnormal features of the air movement in the Equatorial region were probably related to the large modifications of the pressure conditions in the South Indian Ocean which have already been referred to in the Section "Atmospheric Pressure."

Temperature of the air.

The month of April 1902 was more disturbed than usual in North-Eastern India and temperature was hence considerably below the normal over that area. Temperature was, on the other hand, higher than usual in the rainless region of Sind, Gujarat and West Rajputana although to a less extent than during the previous three months. Over the remainder of the country the variations from the normal were comparatively small, an indication of the prevalence of approximately normal conditions.

The mean maximum temperature of the month was slightly above the normal in Lower Burma, the West Punjab, Baghelkhand, the eastern half of the United Provinces, Rajputana, the whole of the Bombay Presidency, Berar and the neighbouring districts of the Central Provinces, Madras (excepting Mysore and the Negapatam and Madura districts) and Ceylon. The variations were generally small in these areas, exceeding 2° only at Kurrachee (+2·9°), Ahmednagar (+2·7°), Deesa (+2·5°), Hyderabad, Sind, (+2·4°) and Malegaon (+2·1°).

The mean maximum or day temperature of the month was below the normal over the remainder of the Indian area. The deficiency was moderate to considerable in amount in Assam, Bengal and Upper Burma and was more than 4° at the stations for which data are given below:—

Station.	Mean maximum temperature.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	°	°	°
Dinajpur	88·0	94·6	−6·6
Bogra	90·2	96·2	−6·0
Dhubri	83·1	88·7	−5·6
Burdwan	95·0	100·6	−5·6
Purnea	91·5	97·0	−5·5
Berhampore	94·8	100·0	−5·2
Jessore	92·3	97·2	−4·9
Narayanganj	88·3	93·2	−4·9
Mymensingh	86·0	90·8	−4·8
Kindat	92·1	96·8	−4·7
Sibsagar	78·0	82·5	−4·5
Jalpaiguri	85·4	89·5	−4·1

The mean maximum temperature of the month was below the normal at the Himalayan hill stations and in Central Asia, as is shown by the following data :—

Station.	Mean maximum temperature. Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	°	°	°
Kashgar	66·3	71·6	−5·3
Leh	52·6	57·1	−4·5
Srinagar	67·3	68·2	−0·9
Gilgit	70·4	72·7	−2·3
Murree	65·4	68·8	−3·4
Mussooree	69·1	72·4	−3·3
Chakrata	67·1	70·3	−3·2
Darjeeling	60·3	62·2	−1·9
Ranikhet	73·2	74·8	−1·6
Cherat	74·1	75·5	−1·4
Simla	65·1	65·2	−0·1

It was, on the other hand, higher than usual in the highlands of Persia and Baluchistan, the excess being on the whole most marked at the most westerly stations of Bushire and Baghdad. The following gives data for five representative stations :—

Station.	Mean maximum temperature. Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	°	°	°
Quetta	75·4	74·2	+1·2
Jask	88·6	87·2	+1·4
Teheran	72·5	71·4	+1·1
Bushire	85·0	81·6	+3·4
Baghdad	84·3	81·6	+2·7

The highest maximum temperatures of the month were generally registered in Bengal, Assam and Upper Burma on the first eight days of the month and over the greater part of North-Western and Central India and the interior of the Peninsula on the last four days.

The following gives the highest maximum temperatures (exceeding 109°) registered during the month and also the highest previously recorded at the same stations :—

Station.	Highest maximum temperature recorded in April 1902.	Date on which recorded.	Highest maximum temperature recorded in April previous to 1902.	Year in which recorded.
	°		°	
Jacobabad	115·6	30th	117·1	1893
Pachpadra	112·5	30th	116·0	1894
Chanda	112·2	28th and 29th.	116·1	1879
Hyderabad (Sind)	111·6	29th	118·1	1886
Deesa	111·1	30th	115·0	1897
Mandalay	111·1?	28th	110·6	1900 and 1901
Cuddapah	110·8	25th	111·3	1888, 1895 and 1896.
Nagpur	110·7	27th, 28th and 29th.	114·9	1892
Akola	110·6	26th and 27th.	114·5	1898
Amraoti	110·4	20th	114·5	1896 and 1898
Gulbarga	110·4	30th	110·7	1896
Dehri	110·4	27th	113·0	1898
Gaya	110·3	27th	113·2	1881
Kurnool	110·3	26th	112·3	1896
Ahmedabad	110·3	30th	115·3	1896
Sholapur	110·2	28th	111·6	1889
Jodhpur	110·2	30th	111·2	1897
Allahabad	110·1	25th	114·5	1876
Sambalpur	110·1	27th	113·3	1889
Chaibassa	110·1	,,	114·1	1896
Hoshangabad	109·9	26th	113·5	1898
Malegaon	109·8	26th and 27th.	111·8	1896
Minbu	109·6	28th	110·6	1900
Raipur	109·5	,,	113·7	1892
Benares	109·3	27th	114·0	1869
Khandwa	109·2	30th	115·2	1896

Except perhaps at Mandalay where, however, the observations are of very doubtful accuracy, the highest day temperatures recorded during the month at the observing stations in the Indian area were by no means remarkable.

The variations of the mean minimum or night temperature of the month were very similar in general character to those of the day temperature. The mean minimum temperature of the month was lower than usual in Upper Burma, Assam, Bengal and the submontane districts of

the United Provinces. It was more than 2° below normal at the stations for which data are given below:—

Station.	Mean minimum temperature.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	°	°	°
Dhubri	67·6	70·7	−3·1
Jessore	72·3	75·1	−2·8
Barisal	72·9	75·4	−2·5
Narayanganj	71·8	74·3	−2·5
Mymensingh	69·7	72·2	−2·5
Bogra	69·5	71·9	−2·4
Chittagong	71·5	73·7	−2·2
Berhampore	72·5	74·6	−2·1

Over the remainder of India the mean minimum temperature was above the normal, but the variations were unimportant except in the area including Sind, Rajputana, Gujarat, Central India and the adjoining districts of the Central Provinces and Berar and locally at a few stations in the Punjab.

The following gives data for the stations at which the mean night temperature of the month was more than 3° above the normal and which hence define the area of greatest excess of night temperature during the month:—

Station.	Mean minimum temperature.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	°	°	°
Kurrachee	78·5	73·1	+5·4
Pachpadra	73·9	69·6	+4·3
Deesa	75·7	71·7	+4·0
Rajkot	73·2	69·4	+3·8
Sutna	75·3	71·6	+3·7
Ajmer	75·0	71·4	+3·6
Veraval	76·0	72·4	+3·6
Akola	78·2	74·8	+3·4
Saugor	76·1	72·8	+3·3
Jhansi	80·0	76·7	+3·3
Surat	76·1	72·8	+3·3
Khandwa	78·5	75·3	+3·2
Hyderabad (Sind)	75·4	72·3	+3·1

The mean night temperature of the month was more or less below the normal both on the inner and outer ranges of the Himalayas and also in Baluchistan and Afghanistan. The following gives comparative data for ten representative stations:—

Station.	Mean minimum temperature.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	°	°	°
Murree	47·7	52·3	−4·6
Kabul	42·3	45·2	−2·9
Gilgit	51·7	54·0	−2·3
Kashgar	47·0	49·0	−2·0
Srinagar	43·4	45·4	−2·0
Chaman	56·2	58·0	−1·8
Chakrata	50·3	52·1	−1·8
Darjeeling	47·5	48·9	−1·4
Simla	50·9	52·2	−1·3
Leh	30·0	30·9	−0·9

The night temperature was, on the other hand, in moderate to considerable excess in the Persian area where skies were clouded to an unusual extent during the month. The following data illustrate these features:—

Station.	Variation of actual from normal of	
	Mean minimum temperature, April 1902.	Mean 8 A.M. cloud April 1902.
	°	
Bushire	+3·1	+1·6
Jask	+2·9	+1·5
Baghdad	+3·3	+1·3

The lowest temperatures of the month were recorded between the 4th and 9th in Persia, on the 8th and 9th in the outer ranges of the Upper India Himalayas and between the 25th and 27th in Kashmir, Baluchistan, Afghanistan and the Upper Indus Valley. They were not, however, so low as have been previously recorded in April in these areas.

The mean temperature of the month was below the normal in Upper Burma, Assam, Bengal, Orissa, the east of the Central Provinces, Chota Nagpur, North Bihar, the central and submontane districts of the United Provinces and at one or two stations in the East Punjab and Mysore. The deficiency was most pronounced in the first three areas in which it ranged between 2° and 4½°. The following gives data for the stations at which the defect was upwards of 3° in amount :—

Station.	Mean daily temperature. Actual, April 1902.	Normal, April.	Variation of actual from normal April 1902.
	°	°	°
Dhubri	75·4	79·8	−4·4
Bogra	79·8	84·0	−4·2
Dinajpur	78·7	82·7	−4·0
Jessore	82·3	86·2	−3·9
Burdwan	84·4	88·2	−3·8
Narayanganj	80·1	83·8	−3·7
Berhampore	83·7	87·4	−3·7
Mymensingh	77·9	81·6	−3·7
Purnea	80·5	83·6	−3·1
Sibsagar	71·5	74·6	−3·1
Bhamo	77·7	80·8	−3·1

Over the remainder of India including nearly the whole of the Peninsula, the Punjab, Sind, Kathiawar, Rajputana, Central India and Lower Burma the mean temperature of the month was above the normal. The variations were generally small and less than 2° except in the divisions for which data are given below :—

Division.	Variation from normal of mean. Maximum temperature.	Minimum temperature.	Daily temperature.
	°	°	°
Gujarat	+0·8	+3·2	+2·0
Kathiawar and Cutch	+1·3	+3·3	+2·3
Sind	+2·4	+3·8	+3·1
Rajputana East and Central India West.	+1·2	+3·3	+2·3

Temperature was in slight to moderate defect in the Himalayan region, Baluchistan and Afghanistan. The following data for eight representative stations illustrate this feature :—

Station.	Mean daily temperature. Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	°	°	
Murree	56·6	60·6	−4·0
Kashgar	56·7	60·4	−3·7
Leh	41·3	44·0	−2·7
Chakrata	58·7	61·2	−2·5
Gilgit	61·1	63·4	−2·3
Kalat	55·0	56·8	−1·8
Darjeeling	53·9	55·6	−1·7
Kabul	57·0	58·3	−1·3

These low temperature conditions did not extend westwards into Persia as temperature was, on the mean of the month, higher than usual in that area. The following gives data for four stations :—

Station.	Mean daily temperature. Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	°	°	
Bushire	77·4	74·1	+3·3
Baghdad	72·3	69·3	+3·0
Jask	82·4	80·2	+2·2
Teheran	61·6	60·7	+0·9

The following gives a summary of the chief features of the temperature conditions of the month in the Indian area :—

(a) Temperature was lower than usual, both by day and night, in North-Eastern India and the sub-

montane districts of the United Provinces. The deficiency was exhibited much more largely in the day than in the night temperature and was greatest in amount in Assam, Upper Burma and Bengal in which it varied between 2° and 4½°.

(b) Both night and day temperatures were above the normal in Lower Burma, over nearly the whole of the Peninsula, and in Kathiawar, Rajputana, Sind and the greater part of the Punjab. The mean temperature of the month hence exceeded the normal in these areas, the excess being most marked in Sind, Gujarat and West Rajputana where it ranged between 2° and 4°.

(c) Temperature was more or less below the normal over the whole Himalayan area and also in Baluchistan and Afghanistan. The deficiency was greatest in amount at Murree (—4·0°) and Kashgar (—3·7°).

(d) The low temperature conditions in Baluchistan did not extend westwards into Persia where the mean temperature of the month was generally from 2° to 3° above the normal.

Ths following gives mean temperature data for the month for the 56 meteorological divisions of the Empire :—

Province.	Division.	Actual Temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	94·1	75·6	84·9	18·5	24·0	+0·2	+0·9	−0·7
	Lower Burma (Deltaic)	96·9	78·5	87·7	18·4	25·0	+0·7	+1·5	−0·8
	Central do.	101·9	76·9	89·5	25·0	36·1	+0·5	+1·8	−1·3
	Upper do.	98·0	72·6	85·3	25·3	39·7	+1·8	−0·5	+2·3
	Arakan	90·9	74·5	82·7	16·4	25·7	−0·9	−1·5	+0·6
Bengal and Assam	Eastern Bengal	88·5	71·1	79·8	17·4	31·7	−3·2	−2·4	−0·8
	Assam (Surma)	85·7	67·6	76·7	18·1	30·8	−2·8	−1·6	−1·2
	Do. (Brahmaputra)	79·6	65·8	72·8	13·9	28·8	−5·1	−2·4	−2·7
	Deltaic Bengal	92·5	74·2	83·4	18·3	31·4	−3·1	−1·3	−1·8
	Central do.	94·5	72·5	83·5	22·0	37·1	−5·6	−2·1	−3·5
	North do.	85·9	68·4	77·2	17·5	29·4	−5·4	−1·0	−4·4
	Bengal Hills	56·4	40·2	48·3	16·3	25·6	−1·9	−1·4	−0·5
	Orissa	92·4	77·3	84·9	15·1	27·0	−2·4	−0·1	−2·3
	Chota Nagpur	99·0	73·9	86·5	25·1	41·8	−1·2	+0·3	−1·5
	South Bihar	100·9	74·8	87·9	26·2	40·6	−2·0	+0·4	−2·4
	North do.	94·3	71·1	82·7	23·2	36·4	−4·5	−0·3	−4·2
United Provinces of Agra and Oudh.	United Provinces (East)	104·0	73·3	88·7	30·8	43·2	+0·6	+1·1	−0·5
	Oudh (South)	102·7	70·1	86·4	32·6	43·5	+0·3	−0·8	+1·1
	Do. (North)	99·8	70·1	85·0	29·7	39·6	+0·2?	+0·4?	−0·2?
	United Provinces (Central)	103·0	73·7	88·4	29·3	40·3	−0·2	+0·5	−0·7
	Do. do. (West)	99·6	71·2	85·4	28·4	38·8	−1·0	+0·3	−1·3
	Do. do. (East Sub-montane)	98·7	71·3	85·0	27·4	37·1	−1·7	−1·1	−0·6
	Do. do. (West do.)	95·0	65·9	80·4	29·2	41·8	−1·0	−0·8	−0·2
	Do. do (Hills)	69·6	52·3	61·0	17·4	34·7	−2·7	−1·4	−1·3
Punjab and North-West Frontier Province.	Punjab (South-East)	97·8	74·5	86·2	23·3	41·1	−1·9	+1·0	−2·9
	Do. (South)	97·6	66·7	82·2	31·0	43·7	?	?	?
	Do. (Central)	96·1	67·2	81·7	28·9	44·4	−2·1	+2·9	−5·0
	Do. (Submontane)	95·8	67·6	81·7	28·2	44·4	−1·0	+1·0	−2·0
	Do. (Hills)	62·7	43·0	52·9	19·7	39·2	−2·1	−2·2	+0·1
	Do. (North)	87·6	60·7	74·2	27·0	45·5	−0·1	+0·3	−0·4
	Do. (West)	97·3	69·0	83·2	28·3	45·9	+0·6	+1·1	−0·5
Bombay and Malabar Coast Districts (Madras).	Malabar	92·0	79·1	85·6	12·9	20·1	+1·0	+1·2	−0·2
	Madras (South Central)	99·1	75·8	87·5	23·3	30·9	0	+1·2	−1·2
	Coorg	82·9	64·1	73·5	18·8	29·9	?	?	?
	Mysore	93·7	70·2	82·0	23·5	34·2	+0·2	+1·1	−0·9
	Konkan	89·7	79·7	84·7	9·9	15·5	+0·6	+1·2	−0·6
	Bombay Deccan	101·8	71·8	86·8	30·1	40·4	+0·1	+0·9	−0·8
	Hyderabad (North)	102·7	72·6	87·7	30·1	44·1	...	...	...
	Khandesh	103·5	71·3	87·4	32·2	43·9	+2·4	+0·6	+1·8
Central Provinces and Berar.	Berar	106·2	77·7	92·0	28·6	43·4	+0·7	+2·1	−1·4
	Central Provinces (West)	105·7	77·3	91·5	28·4	42·3	+0·6	+2·2	−1·6
	Do. (Central)	102·7	75·1	88·9	27·6	40·3	−0·1	+2·2	−2·3
	Do. (East)	102·7	77·4	90·1	25·3	41·3	−1·7	+1·2	−2·9

Province.	Division.	Actual temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Bombay (North)	Gujarat	103·4	77·2	90·3	26·3	35·7	+0·8	+3·2	—2·4
	Kathiawar and Cutch	96·9	75·5	86·3	21·5	31·5	+1·3	+3·3	—2·0
	Sind	101·2	75·5	88·4	25·7	43·4	+2·4	+3·8	—1·4
	Baluchistan Hills	77·7	45·2	61·4	32·5	54·2	+0·6	—1·6	+2·2
Rajputana and Central India.	Central India (East)	101·5	73·8	87·7	27·7	39·6	—0·2	+2·8	—3·0
	Rajputana (East), Central India (West)	102·5	74·7	88·6	27·8	40·3	+1·2	+3·3	—2·1
	Do. (West)	104·0	75·4	89·7	28·6	44·3	+0·4	+0·7	—0·3
Madras	East Coast (North)	92·1	78·5	85·3	13·6	22·6	+0·5	—0·5	+1·0
	Hyderabad (South)	102·7	77·1	89·9	25·6	42·6	+1·1	+0·8	+0·3
	Madras (Central)	105·5	80·2	92·9	25·3	40·3	+1·4	+1·6	—0·2
	East Coast (Central)	98·2	78·5	88·4	19·7	31·7	+0·3	+1·1	—0·8
	Do. (South)	95·8	78·5	87·2	17·2	27·5	—0·2	+1·6	—1·8
	Madras (South)	96·9	77·5	87·0	19·5	28·8	+0·5	+0·6	—0·1

Temperature was at the commencement of the month in slight defect in Southern India and above normal over the remainder of the country. The excess was generally small and unimportant except in the divisions for which data are given below :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 1st April.	Mean minimum temperature, 1st April.	Mean daily temperature, 1st April.
	°	°	°
Bengal	+1·7	+3·1	+2·4
Bihar	+0·7	+5·2	+3·0
Sind	+3·7	+3·6	+3·7
Rajputana	+3·9	+6·0	+5·0
Gujarat	+1·2	+3·5	+2·4
Central India	+2·9	+5·7	+4·3
Central Provinces	+2·8	+1·7	+2·3
Berar	+2·7	+5·7	+4·2

The data show that both day and night temperatures were in excess over these areas and that the excess was considerably greater in the night than in the day temperature in Bihar, Rajputana, Central India, Gujarat and Berar, areas in which skies were densely clouded.

Weather was feebly disturbed in the Deccan and the central parts of the country on the 2nd and in Bengal on the 3rd and a series of thunderstorms occurred in these areas. Temperature hence fell over a large part of the country and was reduced below normal in the region of rainfall which included the whole of Bengal, the Central Provinces and the Deccan.

The following data for the 24 hours preceding 8 A.M. of the 3rd illustrate these changes :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 3rd April.	Mean minimum temperature, 3rd April.	Mean daily temperature, 3rd April.
	°	°	°
Burma	+0·8	+1·6	+1·2
Assam	+0·8	- 0·4	+0·2
Bengal	—2·0	—4·0	—3·0
Orissa	—0·6	—0·9	—0·8
Bihar	—3·4	+1·6	—0·9
Chota Nagpur	—3·0	—1·2	—2·1
United Provinces of Agra and Oudh	+3·1	+0·1	+1·6
Punjab	+4·9	+4·6	+4·8
Sind	+9·4	+2·0	+5·7
Rajputana	+4·2	+6·4	+5·2
Gujarat	+0·1	+3·5	+1·8
Central India	+0·6	+4·4	+2·5
Central Provinces	—3·1	+1·8	—0·7
Berar	—2·3	+4·0	+0·9
West Coast	+1·1	0	+0·6
Bombay Deccan	—2·5	—0·3	—1·4
Mysore	—0·5	+2·0	+0·8
Madras Coast	+0·4	—0·4	0
Madras Deccan	—2·4	—0·2	—1·3
South India	—2·7	—1·7	—2·2

These disturbed conditions continued during the next two days and caused a further reduction of temperature, so that on the 5th temperature was more or less below the normal over the whole of India with the exception of West Bengal and North-Western and Central India.

The following gives data for this area of decreased temperature :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 5th April.	Mean minimum temperature, 5th April.	Mean daily temperature, 5th April.
	°	°	°
Assam	−2·7	−0·8	−1·8
Bengal	−3·7	−2·8	−3·3
Orissa	−2·6	−5·4	−4·0
Central Provinces	−7·1	+0·3	−3·4
Berar	−6·3	−5·9	−6·1
West Coast	+0·1	−0·7	−0·3
Bombay Deccan	−5·1	−2·3	−3·7
Mysore	−2·6	−0·7	−1·7
Madras Coast	−0·2	−0·1	−0·2
Madras Deccan	−3·7	−3·9	−3·8
South India	−1·7	−0·8	−1·3

Temperature had, on the other hand, increased during this period in North-Western India and was now in moderate to large excess in that area.

The following variation data for the 2nd and 5th illustrate this feature :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	2nd April.	5th April.
	°	°
United Province of Agra ond Oudh	+1·0	+2·8
Punjab	+2·7	+6·7
Sind	+3·3	+5·7
Rajputana	+3·0	+3·9
Gujarat	+1·8	+2·3

The increase was, it may be noted, caused by the advance of a warm wave in front of the second storm of the month.

No important change occurred during the next 24 hours except that temperature rose still further in the Punjab and Rajputana and was from 5° to 13° above the normal in these areas on the 6th, the excess being most marked in the night temperature. The following gives data for these two provinces :—

Province or Division.	Variation from normal of		
	Mean maximum temperature 6th April.	Mean minimum temperature, 6th April.	Mean daily temperature, 6th April.
	°	°	°
Punjab	+8·4	+10·6	+9·5
Rajputana	+3·3	+6·5	+4·9

A feeble cool wave appeared in Baluchistan on the 7th in the rear of the second disturbance of the month. The following variation data show the progress of the wave across Persia and Baluchistan :—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	4th April.	5th April.	6th April.	7th April.	8th April.
	°	°	°	°	°
Baghdad	−0·9	−1·7	+3·4	+3·0	+8·8
Ispahan	+8·6	−3·4	−1·5	−0·4	+0·4
Teheran	−7·4	−2·1	−0·9	+2·7	+4·2
Bushire	+13·6	−0·8	−4·1	−2·1	...
Jask	+6·7	+5·8	+4·2	+1·1	+3·2
Kabul	+8·7	+10·8	−4·7	−3·3	−1·3
Quetta	+7·3	+7·7	+2·2	−5·9	−4·0
Chaman	+9·7	+7·4	+1·9	−1·3	−3·1

The wave extended rapidly into Upper India during the 7th and reduced temperature very largely in that area.

The following data for the 7th and 8th illustrate the effect of the cool wave on the temperature conditions in Upper India :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	7th April.	8th April.
	°	°
Punjab	+3·5	−3·3
Rajputana	+5·3	−1·9

The area of excessive temperature in Upper India on the 6th and 7th had, owing to the advance of the cool wave, been displaced eastwards to the eastern districts of the Gangetic Plain and southwards to Gujarat and the West Coast.

The following data define its position on the 8th :—

DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 8th April.	Mean minimum temperature, 8th April.	Mean daily temperature, 8th April.
	°	°	°
Gujarat	+2·5	+3·9	+3·2
West Coast	+1·0	+1·8	+1·4
Gangetic Plain, East	+1·5	+7·6	+4·6

Temperature had increased in Bengal and the Peninsula and was now either normal or in only slight defect.

The following gives data for these areas :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 8th April.	Mean minimum temperature, 8th April.	Mean daily temperature, 8th April.
	°	°	°
Bengal	+1·0	—0·5	+0·3
Orissa	—1·0	+0·7	—0·2
Bihar	—1·9	+2·6	+0·4
Chota Nagpur	—2·1	+1·0	—0·6
Central Provinces	—2·3	+2·4	+0·1
Berar	—0·8	+0·7	—0·1
West Coast	+1·0	+1·8	+1·4
Bombay Deccan	—1·4	+3·0	+0·8
Mysore	—2·3	—1·1	—1·7
Madras Coast	—0·9	0	—0·5
Madras Deccan	—3·5	+0·2	—1·7
South India	—2·4	—0·4	—1·4

Numerous thundershowers occurred in Bengal during the day. Temperature hence decreased very rapidly and on the 9th averaged 7° in defect in Bihar, 5½° in Chota Nagpur and 4° in Bengal. The reduction was, as is usual during rainfall, much greater in the day than in the night temperature. The cool wave which was passing through Upper India on the previous day had caused a rapid fall of temperature in the United Provinces and the excess shown over the eastern districts of that area had disappeared and been replaced by a considerable deficiency. Temperature was hence more or less largely below normal on this day over nearly the whole of Extra-Tropical India and Baluchistan, in slight to moderate excess in the Bombay Presidency and the Madras Coast districts and practically normal over the remainder of the country.

The following variation data for the 24 hours preceding 8 A.M. of the 9th indicate fully the temperature conditions obtaining on this day :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 9th April.	Mean minimum temperature, 9th April.	Mean daily temperature, 9th April.
	°	°	°
Baluchistan	—1·3	—2·9	—2·1
Burma	—0·5	+1·2	+0·4
Assam	—3·0	—3·1	—3·1
Bengal	—3·0	—4·9	—4·0
Orissa	—2·1	+0·2	—1·0
Bihar	—9·4	—4·3	—6·9
Chota Nagpur	—6·5	—4·5	—5·5
United Provinces of Agra and Oudh	—7·5	—2·3	—4·9
Punjab	—5·5	—0·9	—3·2
Sind	+1·8	+4·2	+3·0
Rajputana	—1·3	—0·6	—1·0
Gujarat	+1·0	+4·8	+2·9
Central India	—4·0	+2·1	—1·0
Central Provinces	—3·0	+1·6	—0·7
Berar	—0·4	—0·2	—0·3
West Coast	+0·5	+2·2	+1·4
Bombay Deccan	+0·7	+2·8	+1·8
Mysore	—0·7	+0·2	—0·3
Madras Coast	+1·7	+1·9	+1·8
Madras Deccan	—0·8	+0·7	—0·1
South India	—0·4	+0·5	+0·1

The lowest temperatures of the month in the Punjab and Kumaon Himalayas were registered on the 8th and 9th during the progress of the cool wave. They were, however, not so low as have been recorded previously in those areas.

Temperature increased in North-Western India during the next three days and on the 12th was normal or in excess all over India except in Bengal, Assam and Mysore where it still remained below the normal.

The following variation data illustrate the character of the temperature distribution on this day :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 12th April.	Mean minimum temperature, 12th April.	Mean daily temperature, 12th April.
	°	°	°
Burma	+0·1	+1·6	+0·9
Assam	−2·9	−1·8	−2·4
Bengal	−6·6	−1·9	−4·3
Orissa	−2·6	+1·4	−0·6
Bihar	−2·0	−0·7	−1·4
Chota Nagpur	−2·9	+0·1	−1·4
United Provinces of Agra and Oudh.	+0·4	−1·2	−0·4
Punjab	−3·0	+2·7	−0·2
Sind	+0·5	+6·5	+3·5
Rajputana	+2·7	+1·9	+2·3
Gujarat	+1·6	+3·8	+2·7
Central India	+0·4	+3·1	+1·8
Central Provinces	−1·0	+3·4	+1·2
Berar	+2·2	+5·8	+4·0
West Coast	+0·7	+0·6	+0·7
Bombay Deccan	+2·0	−0·4	+0·8
Mysore	−1·4	−2·8	−2·1
Madras Coast	−0·6	+1·4	+0·4
Madras Deccan	−1·5	+1·9	+0·2
South India	+1·0	+2·2	+1·6

A disturbance affected the weather in Afghanistan and the Western Himalayas on the 11th and 12th and gave some rain on the lower ranges and moderate snow on the higher elevations. The cool wave which originated in the area of snowfall to the north and west of the Punjab subsequently extended eastwards and had reached the United Provinces by the 15th.

The following variation data illustrate the progress of this wave :—

PROVINCE OR STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	12th April.	13th April.	14th April.	15th April.
	°	°	°	°
Kabul	−10·8	−2·7	−4·4	−0·6
Chaman	− 5·4	−7·2	−4·0	+4·2
Sind	+ 3·5	+3·0	+1·5	+4·7
Punjab	− 0·2	−3·0	−1·6	−1·9
United Provinces of Agra and Oudh.	− 0·4	+2·8	+1·5	−2·0
Rajputana	+ 2·3	+2·0	+0·4	−0·5

Bengal and Assam received fairly general rain on the 14th and 15th and the very large reduction of temperature thence resulting accentuated the deficiency already obtaining in that area. The reduction was exhibited chiefly in the day temperature. The following table, giving variation data for the 15th and 16th, shows the unusually low temperatures prevailing at this time in North-Eastern India :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	15th April.	16th April.
	°	°
Assam	−8·0	−9·4
Bengal	−5·0	−7·2
Bihar	−0·9	−4·6

The feeble depression which entered Sind from the west on the 16th, was preceded by a warm wave of slight intensity, which, however, failed to advance beyond the Punjab. The following data indicate the character of this warm wave :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	14th April.	15th April	16th April.	17th April.
		°	°	
Baluchistan	−3·4	+4·5	+3·4	−0·1
Sind	+1·5	+4·7	+4·5	+4·4
Punjab	−1·6	−1·9	+3·8	−1·3

Temperature gave way in the Punjab during the 16th and 17th and on the 18th the distribution of temperature relatively to the normal, was similar in character to that of the 9th.

The following gives variation data of the temperature of the 24 hours preceding 8 A. M. of the 18th:—

Province or Division.	Variation from normal of: Mean maximum temperature, 18th April.	Mean minimum temperature, 18th April.	Mean daily temperature, 18th April.
	°	°	°
Burma	−1·1	−0·9	−1·0
Assam	−4·3	−3·7	−4·0
Bengal	−5·8	−4·0	−4·9
Orissa	−6·0	−6·1	−6·1
Bihar	−8·0	−1·4	−4·7
Chota Nagpur	−4·0	−4·1	−4·1
United Provinces of Agra and Oudh.	−3·1	+0·2	−1·5
Punjab	−2·1	−0·8	−1·5
Sind	−0·6	+6·3	+2·9
Rajputana	−1·6	+3·2	+0·8
Gujarat	+1·4	+2·8	+2·1
Central India	−1·0	+4·0	+1·5
Central Provinces	+1·0	+1·0	+1·0
Berar	+1·5	+0·9	+1·2
West Coast	+1·3	+1·7	+1·5
Bombay Deccan	+2·8	−0·3	+1·3
Mysore	+0·7	+1·8	+1·3
Madras Coast	+0·8	+1·2	+1·0
Madras Deccan	+0·5	+1·9	+1·2
South India	+1·4	+2·4	+1·9

On the 19th temperature increased generally in India and diminished in Burma and on the 20th was from 2° to 7° above the normal over the whole of the Indian area except North-Eastern India and Upper and Central Burma where it was in large defect.

The following table giving data for the divisions in which the variations exceeded 3° shows the areas of greatest excess and defect on the 20th:—

Province or Division.	Variation from normal of: Mean maximum temperature, 20th April.	Mean minimum temperature, 20th April.	Mean daily temperature, 20th April.
	°	°	°
Bengal	−6·7	−2·2	−4·5
Bihar	−8·1	−0·6	−4·4
Punjab	+2·4	+3·7	+3·1
Sind	+2·0	+6·7	+4·4
Rajputana	+3·6	+6·2	+4·9
Central India	+1·7	+4·7	+3·2
Berar	+3·7	+4·5	+4·1
Madras Deccan	+3·2	+3·6	+3·4

A slight disturbance affected the weather in the hill and plains districts of Upper India during the next 24 hours, occasioning a fall of snow on the higher ranges of the Western Himalayas. Temperature hence fell rapidly in Baluchistan and Upper India and on the 21st was below the normal in these areas and in North-Eastern India and Upper Burma and in considerable excess in all other districts.

The only large change during the next two days was a rapid rise of temperature in Upper India. On the 23rd the temperature conditions differed little from the normal except in the areas for which data are given below:—

Province or Diivsion.	Variation from normal of: Mean minimum temperature, 23rd April.	Mean minimum temperaturre, 23rd April	Mean daily temperature, 23rd April
	°	°	°
Burma	−1·8	−2·7	−2·3
Assam	−6·5	−3·3	−4·9
Bengal	−7·7	−3·2	−5·5
Bihar	−5·9	−0·4	−3·2
Punjab	+0·5	+5·2	+2·9
Sind	+2·6	+5·1	+3·9
Rajputana	+2·2	+3·8	+3·0
Madras Coast	+2·2	+1·9	+2·1
Madras Deccan	+2·5	+3·2	+2·9

During the remainder of the month the temperature conditions in Northern India were determined by the passage across that area of a storm of moderate intensity. The storm gave very disturbed weather in Afghanistan, Kashmir, Thibet and Upper India, with heavy falls of snow on the higher elevations in these areas. The cool wave which resulted was of considerable intensity and affected these areas from the 24th to the 28th.

The following gives variation data showing the greatest deficiency of temperature and its locality on each day from the 24th to the 28th:—

AREA.	24th.		25th.		26th.		27th.		28th.	
	Greatest deficiency of temperature.	Locality.	Greatest deficiency of temperature.	Locality.	Greatest deficiency of temperature.	Locality.	Greatest deficiency of temperature.	Locality.	Greatest deficiency of temperature.	Locality.
	°		°		°		°		°	
Turkestan	−12·2	Kashgar	−21·0	Kashgar	−22·2	Kashgar	−11·2	Kashgar	− 3·8	Kashgar
Kashmir	−12·1	Srinagar	−13·4	Gilgit	−18·5	Gilgit	−11·0	Gilgit	−10·4	Gilgit
Upper India Hills	− 8·5	Cherat	−15·8	Ranikhet	−15·7	Murree	− 7·7	Murree	− 3·5	Murree
„ „ Plains	− 5·6	Peshawar	− 8·1	Roorkee	−11·6	Rawalpindi	−11·2	Montgomery	− 8·5	Sirsa
Afghanistan	− 7·5	Kabul	− 8·8	Kabul	− 9·5	Kabul	− 6·8	Kabul	−10·4	Kabul
Baluchistan	...	...	− 6·1	Chaman	−15·8	Kalat	−11·8	Kalat	− 6·1	Kala

The data show that the reduction of temperature was most marked in Turkestan and at the higher elevations of Kashmir. The day temperature was, as is usually the case, much more largely affected than the night temperature. The following gives data in illustration:—

DATE.	Station or Province.	VARIATION FROM NORMAL OF	
		Maximum temperature.	Minimum temperature.
		°	°
25th	Kashgar	−29·4	−12·6
26th	Kashgar	−29·6	−14·7
„	Gilgit	−24·0	−12·9
„	Punjab	− 8·3	− 4·2

The lowest night temperatures of the month in Kashmir, Baluchistan, Afghanistan and the West Punjab were recorded in this period but were not so low as have been occasionally registered in the month of April during previous years.

A rapid increase of temperature occurred in Baluchistan, the Punjab and Sind on the 28th and 29th and at the end of the month temperature was in large excess in the last two areas. The area of low temperature, which covered the Punjab on the 28th, was, in consequence of this rise, displaced eastwards into the Gangetic Plain on the 29th and 30th, so that on the latter date temperature was more or less in defect over the whole of the United Provinces, Bengal, Assam, Upper Burma, Central India and the Central Provinces and in excess over the remainder of the country.

The following variation data for the 24 hours preceding 8 A.M. of the 30th, illustrate the temperature conditions obtaining at the end of the month:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 30th April.	Mean minimum temperature, 30th April.	Mean daily temperature, 30th April.
	°	°	°
Burma	+2·6	+1·1	+1·9
Assam	−5·0	−3·0	−4·0
Bengal	−3·1	+0·3	−1·4
Orissa	−4·2	−0·1	−2·2
Bihar	+1·2	−1·1	+0·1
Chota Nagpur	−0·9	−1·2	−1·1
United Provinces of Agra and Oudh.	+0·1	−5·4	−2·7
Punjab	+2·2	+4·6	+3·4
Sind	+4·1	+6·6	+5·4
Rajputana	+3·1	−1·9	+0·6
Gujarat	+2·1	+0·6	+1·4
Central India	+0·8	−4·6	−1·9
Central Provinces	+0·1	−2·3	−1·1
Berar	+1·7	−2·7	−0·5
West Coast	+0·9	+1·4	+1·2
Bombay Deccan	+3·3	+1·6	+2·5
Mysore	+1·6	−1·1	+0·3
Madras Coast	−0·9	+1·6	+0·4
Madras Deccan	+3·8	+0·9	+2·4
South India	+0·3	+1·1	+0·7

Winds.

Winds were, on the mean of the month, more southerly than usual at Port Blair. They were slightly stronger than usual on the Pegu coast and below their normal steadiness and intensity on the Arakan coast where also they blew more directly from the south than usual. The following data show the character of the air movement in these three areas :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, April 1902.	Normal percentage, April.	Variation of actual from normal, April 1902.	Actual, April 1902.	Normal, April.	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
				°	°			
Port Blair . . .	60	41	+19	S 74 E	N 89 E	98	116	—18
Diamond Island . .	72	73	— 1	N 58 W	N 60 W	218	187	+31
Akyab . . .	27	37	—10	S 37 W	S 65 W	68	96	—28

Winds were slightly stronger and steadier than usual in Bengal, more especially in the coast districts. They were, on the other hand, somewhat below their normal intensity in Orissa although steadier than usual. The mean wind direction was identical with the normal at Chittagong and Calcutta but was much more southerly than usual at Saugor Island and False Point. The latter feature is shown clearly by the following data :—

Station.	Mean wind direction.		
	Actual, April 1902.	Normal, April.	Southerly deflection.
	°	°	°
Saugor Island . . .	S 2 E	S 14 W	+14
False Point	S 19 W	S 31 W	+12

Winds were unusually light in Bihar and, on the mean of the month, blew more directly from the east than usual. The following data for Darbhanga illustrate these features :—

Station.	Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual, April 1902.	Normal, April.	Easterly Deflection.	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	°	°	°			
Darbhanga . . .	S 72 E	S 46 E	+26	99	142	—43

Winds were slightly more westerly than usual in Chota Nagpur, as was also the case in the Central Provinces. Their velocity, on the other hand, was somewhat below the normal.

Winds were practically of normal strength and steadiness in the Punjab, Sind, Rajputana and the United Provinces. They, however, varied very irregularly in direction from the normal from station to station.

The following gives seven examples :—

Station.	Mean Steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, April 1902.	Normal percentage, April.	Variation of actual from normal, April 1902.	Actual, April 1902.	Normal, April.	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
				°	°			
Meerut . . .	28	45	—17	N 73 W	N 60 W	47	60	—13
Roorkee . . .	12	20	— 8	N 63 W	N 72 W	81	78	+ 3
Lahore . . .	33	27	+ 6	N 6 E	N 23 W	80	77	+ 3
Ludhiana . . .	28	28	0	N 65 W	N 54 W	80	54	+26
Peshawar . . .	22	25	— 3	N 9 W	N 8 E	70	104	—34
Jacobabad . .	11	13	— 2	N 48 E	S 65 E	93	100	— 7
Jaipur . . .	25	52	—27	S 72 W	N 52 W	96	124	—28

Winds were of approximately normal strength and steadiness on the Konkan coast. They were much more westerly than usual at Bombay but blew from about their normal direction at Karwar.

Winds were generally stronger and steadier than usual in Berar and the Central Provinces and the westerly element in the north-west winds of the month was much more pronounced than usual. The following gives data showing the westerly deflection at four stations in this area :—

Station.	Mean wind direction.		
	Actual, April 1902.	Normal, April.	Westerly deflection.
	°	°	°
Akola	N 55 W	N 48 W	+ 7
Buldana	N 60 W	N 33 W	+27
Khandwa	N 62 W	N 49 W	+13
Nagpur	N 87 W	N 65 W	+22

Winds were considerably above their normal steadiness and intensity in the Bombay Deccan and, on the mean of the month blew from north-north-west, instead of from north-by-east, at Sholapur. They were, on the other hand, much more northerly than usual at Belgaum.

The following data illustrate these features:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, April 1902.	Normal percentage, April.	Variation of actual from normal, April 1902.	Actual, April 1902.	Normal, April.	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
				°	°			
Belgaum . . .	52	35	+17	N 53 W	N 77 W	337	320	+17
Sholapur . . .	58	13	+45	N 26 W	N 5 E	254	213	+41

The mean air movement of the month was slightly below its normal intensity in South India and Mysore and somewhat stronger than usual on the Madras Coast and in the Madras Deccan. Winds were, however, not so steady sa usual in South India. The mean wind directions varied irregularly from the normal at different stations but were, on the whole, more southerly than usual in Mysore and the Madras Coast. There was, on the other hand, more easting in the direction of the wind at Salem than is usual in April.

The following gives data for four stations:—

Station.	Mean wind direction.	
	Actual, April 1902.	Normal, April.
	°	°
Salem	S 13 E	S
Bangalore	S 2 E	S 33 W
Mysore	S 35 W	S 79 E
Madras	S 20 E	S 37 E

Winds were generally stronger and steadier than usual at the hill stations in North-Western India. They were generally practically identical in direction with the normal, except at Srinagar, Chakrata and Simla for which data are given below:—

Hill station.	Mean wind direction.	
	Actual, April 1902.	Normal, April.
	°	°
Srinagar	N 62 W	N 5 W
Chakrata	S 18 E	S 64 W
Simla	N 75 W	S 84 W

Winds at Zanzibar were practically normal in direction but were somewhat feebler and less steady than usual. They were, on the other hand, more southerly and steadier than usual at the Seychelles.

The following summarizes the chief abnormal features of the air movement of the month in the Indian area:—

(1) Winds were steadier and stronger than usual in Bengal and practically of normal intensity in Orissa. On the mean of the month their direction was more southerly than usual at the coast stations of Saugor Island and False Point.

(2) Winds were unusually steady in Bihar, and the easterly element in their mean direction was much more pronounced than usual.

(3) Winds were very variable and below their normal strength in the plains of North-Western India. They were, on the other hand, stronger and steadier in the hill districts.

(4) Winds were considerably stronger and steadier than usual in Berar, the Central Provinces and West Deccan, and on the mean of the month were much more westerly than usual over the whole of that area as well as in the North Konkan and Chota Nagpur.

(5) Winds were generally more southerly than usual in Mysore and the Madras Coast and more easterly and less southerly in South India.

(6) The mean air movement was of normal intensity in the Indian Seas Winds were steadier and more southerly than usual at the Seychelles, but were below their normal strength and steadiness at Zanzibar.

It may be noted that the large abnormal features of the air movement during the month, *viz.*, increased westing in Berar, the Central Provinces and Chota Nagpur, the diminished westing on the West Bengal and Orissa Coasts and increased easting in Bihar, were directly related to the pressure anomalies of the month, the most important of which were a marked excess in North-Eastern India and Burma and a slight to considerable deficiency in North-Western and Central India.

Humidity and Cloud.

The air was slightly drier than usual in the Andamans owing to higher temperature than usual, for the amount of aqueous vapour present in the air was greater than the normal.

In Lower Burma the air contained somewhat less vapour than usual and as temperature also was above the normal in that area, the mean relative humidity of the month was in defect.

The following gives comparative data for the stations in these two areas :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	"	"	"	%	%	
Port Blair . .	·947	·929	+·018	75	77	—2
Diamond Island .	·848	·851	—·003	72	76	—4
Rangoon . .	·773	·784	—·011	63	66	—3

The air was also drier than usual in the North and East Punjab, East Rajputana, the western half of the United Provinces, the Central Provinces and Orissa.

The mean humidity percentage of the month was more than 4 in defect at the stations for which data are given below :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	"	"	"	%	%	
Ludhiana . .	·328	·412	—·084	34	43	—9
Meerut . . .	·307	·386	—·079	31	37	—6
Dehra Dun . .	·263	·322	—·059	32	37	—5
Peshawar . .	·383	·410	—·027	47	52	—5

The dryness was hence most marked in the submontane districts of Upper India and was chiefly a result of decreased absolute humidity.

The mean relative and absolute humidities were more or less above the normal in South India, the whole of the Bombay Presidency (including Sind) and South-West Rajputana. The variations were generally small to moderate in amount and indicated that the humidity conditions were approximately normal in these areas.

The following table gives comparative data for the stations at which the mean humidity of the month was more than 3 in excess:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	"	"	"	%	%	
Salem . . .	·866	·731	+·135	69	59	+10
Jacobabad . . .	·519	·363	+·156	37	32	+ 5

The air was damper than usual over nearly the whole of North-Eastern India (except Orissa). This was largely due to an increased influx of sea winds from the head of the Bay, and the occurrence of unusually heavy rain over that area.

The following gives data for this area of increased humidity :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	"	"	"	%	%	
Chittagong . . .	·770	·816	—·046	77	74	+ 3
Calcutta . . .	·822	·791	+·031	72	68	+ 4
Hazaribagh . . .	·356	·303	+·053	32	28	+ 4
Darbhanga . . .	·702	·572	+·130	64	52	+12
Allahabad . . .	·428	·384	+·044	33	31	+ 2

The mean pressure of aqueous vapour in the air was less than the normal in Baluchistan and the Simla and Mussooree Hills, and the air was hence considerably drier than usual in these areas.

The following gives data in illustration :—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	"	"	"	%	%	
Quetta . . .	·222	·260	—·038	43	50	—7
Ranikhet . .	·214	·265	—·051	39	44	—5
Simla . . .	·182	·228	—·046	40	44	—4

The air was, on the other hand, more humid than usual in the Kashmir and Sikkim Himalayas, in consequences partly of decreased temperature and partly of increase in the amount of aqueous vapour present in the air.

The following gives data for two representative stations :—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	"	"	"	%	%	
Srinagar . .	·376	·328	+·048	83	71	+12
Darjeeling . .	·329	·326	+·003	83	76	+ 7

The mean humidity conditions of the month were almost identical with the normal at the hill stations in the central parts of the country, as is shown below :—

Hill Station.	Absolute Humidity.			Relative Humidity.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
	"	"	"	%	%	
Pachmarhi	·255	·248	+·007	25	26	—1
Chikalda	·284	·278	+·006	27	26	+1
Mount Abu	·301	·254	+·047	31	28	+3

The mean humidity of the month was below 30 per cent. at the following stations :—

Station.	Relative Humidity.
	Actual, April 1902.
	%
Khandwa	23
Buldana	24
Akola	24
Jaipur	24
Nagpur	24
Pachmarhi	25
Chikalda	27

The area of greatest dryness during the month hence lay over Berar, the Central Provinces and East Rajputana.

The driest period of the month in these areas was from the 26th to the 30th, when the following very low humidities were recorded :—

Station.	Date.	Hour.	Lowest humidity recorded.
			%
Jaipur	26th April	10 A.M. 4 P.M.	7
Deesa	28th "	10 A.M.	5
Pachmarhi	29th & 30th April	4 P.M.	6
Nagpur	29th "	10A.M.&4PM	7
Khandwa	" "	4P.M.	7
Buldana	" "	" "	8

Equally low humidities were recorded in the United Provinces and Chota Nagpur on the 21st and 22nd, as is shown by the following data :—

Station.	Date.	Hour.	Lowest humidity recorded.
			%
Roorkee	21st April.	4 P.M.	4
Meerut	" "	"	5
Dehra Dun	" "	"	7
Do.	22nd "	"	9
Allahabad	" "	"	10
Hazaribagh	" "	"	10

The following summarizes the chief features of the humidity conditions of the month :—

(1) The air was somewhat drier than usual in the Bay Islands and Lower Burma.

(2) The mean relative humidity of the month was in considerable defect in the submontane districts of Upper India and in slight to moderate defect in East Rajputana, the Central Provinces and Orissa. The dryness in this area was most marked at Ludhiana (—9).

(3) Humidity was practically normal in Bombay, Mysore and Berar, slightly in excess in Sind and South-West Rajputana and much above the normal in South India as represented by Salem (+10).

(4) The air was considerably damper than usual in North-Eastern India (excluding Orissa), the area of frequent and abundant rainfall in the month.

(5) Humidity was in marked excess in Kashmir and the Sikkim Himalayas.

(6) Humidity was in large defect in Baluchistan and in the Simla and Mussooree Hills. In the latter area the defect was as great as in the adjacent plains.—

The mean cloud amount of the month was in slight defect in the Bay Islands and at Diamond Island. The following gives comparative data :—

Station.	Mean cloud amount.		
	Actual, April. 1902.	Normal, April.	Variation of actual from normal, April 1902.
Port Blair	3·5	4·3	—0·8
Diamond Island	2·9	3·4	—0·5
Cocos Island	2·7	3·1	—0·4

There was less cloud than usual in Bombay, Berar and the neighbouring districts of the Central Provinces. The deficiency was more than 1·0 at the stations for which data are given below :—

Station.	Mean cloud amount.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
Karwar	1·1	2·5	—1·4
Buldana	1.0	2·3	—1·3

Cloud was, on the other hand, more or less above the normal over the whole of Northern and Southern India and Arakan. Skies were clouded to an unusual extent during the month over a large part of this area and more especially at the following stations :—

Station.	Mean cloud amount.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal, April 1902.
Mysore	7·2	4·5	+2·7
Hazaribagh	5·0	2·8	+2·2
Calcutta	4·9	2·7	+2·2
Salem	5·8	3·7	+2·1

The variations of cloud at the hill stations were similar in character to those of the adjacent plains, there being more cloud than usual at the Himalayan stations and in Baluchistan and less cloud at Chikalda in Berar.

The following gives data for the stations at which the excess was greatest :—

Hill Station.	Mean cloud amount.		
	Actual, April 1902.	Normal, April.	Variation of actual from normal April 1902.
Srinagar	6·5	4·3	+2·2
Kailang	7·0	5·7	+1·3

The mean cloud amount of the month was less than 1·5 at the stations for which data are given below :—

Station.	Mean cloud amount.
	Actual, April 1902.
Jamnagar	0·9
Buldana	1·0
Karwar	1·1
Bombay	1·2

Skies were hence throughout the whole month most serene in the Konkan and parts of Berar and Gujarat.

There was considerably more cloud than usual at Zanzibar (+1·6). The mean for the month was, on the other hand, in defect at the Seychelles (−0·8).

The chief abnormal features of the cloud distribution of the month were as follows :—

(1) Cloud was more or less in defect in the Bay Islands, the Konkan, the Bombay Deccan, Berar and the neighbouring districts of the Central Provinces. The deficiency was most pronounced in the Konkan and part of Berar.

(2) Cloud was in moderate to large excess over nearly the whole of Northern India and the south of the Peninsula. The excess was greatest at Mysore (+2·7) and Hazaribagh and Calcutta (each+2·2).

(3) Cloud was almost as largely in excess at the hill stations of Northern India as in the adjacent plains.

Rainfall.

The month of April was very dry over the greater part of the interior of India and more disturbed and rainy than usual in Bengal and Assam, the east of the Central Provinces, the hill and submontane districts of Upper India, Ganjam and Mysore. The rainfall in the first three areas accompanied the advance of a series of eight depressions of the cold weather type across Northern India. In Mysore and Ganjam, on the other hand, it was due to local storms such as usually occur in these areas in the hot weather period.

Moderate to heavy snow fell during the month on the higher ranges of the Kashmir and Punjab Himalayas.

The following table gives comparative rainfall data for 56 meteorological or rainfall divisions of the Empire:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, April 1902.	Average normal, April.	Average actual, April 1902.	Average normal, April.	Variation of actual from normal, April 1902.
				Inches.	Inches.	Inches.
Burma	Tenasserim	3·5	5·0	1·99	3·99	−2·00
	Lower Burma (Deltaic)	0·4	2·5	0·26	1·83	−1·57
	Central do.	0·3	1·6	0·15	0·94	−0·79
	Upper do.	3·4	2·2	1·29	1·15	+0·14
	Arakan	3·4	1·7	2·12	1·30	+0·62
Bengal and Assam	Eastern Bengal	12·6	5·0	13·52	4·24	+9·28
	Assam (Surma)	17·2	12·2	20·14	13·42	+6·72
	Do. (Hills)	15·8	9·0	12·83	8·00	+4·83
	Do. (Brahmaputra)	16·6	11·5	11·28	8·09	+3·19
	Deltaic Bengal	8·8	3·5	5·88	2·31	+3·57
	Central do.	6·1	2·4	3·71	1·41	+2·30
	North do.	8·0	5·1	4·85	3·97	+0·88
	Bengal Hills	11·1	8·4	5·75	4·35	+1·40
	Orissa	5·2	2·2	3·13	1·23	+1·90
	Chota Nagpur	2·0	1·7	0·95	0·85	+0·10
	Bihar (South)	1·0	0·7	0·51	0·29	+0·22
	Do. (North)	1·9	1·3	0·77	0·80	−0·03
United Provinces of Agra and Oudh.	United Provinces (East)	0·1	0·3	0·08	0·13	−0·05
	Oudh (South)	0	0·3	0·02	0·10	−0·08
	Do. (North)	0·3	0·4	0·10	0·17	−0·07
	United Provinces (Central)	0·1	0·3	0·03	0·09	−0·06
	Do. do. (West)	0·4	0·5	0·11	0·16	−0·05
	Do. do. (Submontane, East)	0·3	0·5	0·18	0·25	−0·07
	Do. do. (Do. West)	1·7	0·8	0·68	0·32	+0·36
	Do. do. (Hills)	3·7	2·6	1·75	1·11	+0·64
Punjab and North-West Frontier Province.	Punjab (South-East)	0·8	0·6	0·24	0·25	−0·01
	Do. (South)	0·7	0·7	0·23	0·35	−0·12
	Do. (Central)	1·2	1·5	0·47	0·64	−0·17
	Do. (Submontane)	1·8	1·3	0·70	0·72	−0·02
	Do. (Hills)	5·7	3·5	2·91	2·39	+0·52
	Do. (North)	3·9	3·1	1·89	1·60	+0·29
	Do. (West)	0·5	1·0	0·12	0·50	−0·38
Bombay and Malabar Coast Districts (Madras).	Malabar	3·8	4·8	1·83	3·35	−1·52
	Travancore	7·1		3·87		
	Madras (South Central)	2·1	2·8	1·25	1·70	−0·45
	Coorg	8·8		4·40		
	Mysore	3·8	2·4	1·76	1·22	+0·54
	Konkan	0·3	0·8	0·09	0·45	−0·36
	Bombay Deccan	1·1	2·3	0·56	1·13	−0·57
	Khandesh	0·3	0·3	0·08	0·13	−0·05
Central Provinces and Berar.	Berar	0·7	0·6	0·31	0·24	+0·07
	Central Provinces (West)	0·4	0·6	0·11	0·24	−0·13
	Do. do. (Central)	0·7	0·8	0·22	0·30	−0·08
	Do. do. (East)	2·9	1·2	1·13	0·50	+0·63
Bombay (North)	Gujarat	0	0·1	0·01	0·02	−0·01
	Kathiawar and Cutch	0·2	0·1	0·04	0·03	+0·01
	Sind	0·1	0·3	0·01	0·13	−0·12
	Baluchistan Hills	0·8	1·2	0·20	0·48	−0·28
Rajputana and Central India.	Central India (East)	0·2	0·2	0·06	0·07	−0·01
	Rajputana (East), Central India (West)	0·2	0·3	0·05	0·11	−0·06
	West Rajputana	0·1	0·2	0·03	0·06	−0·03
Madras	East Coast (North)	2·5	1·5	1·59	0·85	+0·74
	Madras Central	2·4	1·3	0·79	0·61	+0·18
	East Coast (Central)	0·6	0·9	0·46	0·46	0
	East Coast (South)	0·3	1·4	0·16	0·92	−0·76
	Madras South	1·8	3·4	1·04	2·22	−1·18

The data indicate that the rainfall of the month was actually or practically *nil* (*i.e.*, less than a tenth of an inch) over the area including Gujarat, Kathiawar and Cutch, Sind, Central India, Rajputana, Khandesh, the Konkan, the eastern and central districts of the United Provinces and South Oudh. It was less than two inches in total amount over the whole of the remainder of the country with the exception of the areas for which data are given below :—

Division.	Rainfall. Average actual, April 1902.	Average normal, April.	Variation of actual from normal, April 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Arakan	2·12	1·50	+0·62	+41
Eastern Bengal	13·52	4·24	+9·28	+219
Assam Surma	20·14	13·42	+6·72	+50
Do. Hills	12·83	8·00	+4·83	+60
Do. Brahmaputra	11·28	8·09	+3·19	+39
Deltaic Bengal	5·88	2·31	+3·57	+155
Central do.	3·71	1·41	+2·30	+163
North do.	4·85	3·97	+0·88	+22
Bengal Hills	5·75	4·35	+1·40	+32
Orissa	3·13	1·23	+1·90	+154
Punjab Hills	2·91	2·39	+0·52	+22
Travancore	3·87			
Coorg	4·40			

The rainfall of the month was exceptional in character in Bengal and Assam which, as in the preceding month, obtained much larger amounts than usual. The rainfall at several stations in Bengal was in fact larger in amount than has been previously recorded in the month of April.

The following examples show clearly the unusual character of the precipitation :—

Station.	Total rainfall in April 1902.	Highst total rainfall previously recorded in April.	Year in which recorded.
	Inches.	Inches.	
Barisal	21·01	6·91	1893
Dacca	14·00	9·37	1888
Chittagong	13·24	11·66	1892
Mymensingh	11·60	11·22	1884

Thunder showers were received on several occasions during the month in Tenasserim, Lower and Central Burma but they were light and sporadic and the rainfall of the month was much below normal in these areas.

Upper Burma and Arakan, on the other hand, obtained frequent showers between the 9th and the end of the month which gave average total amounts slightly in excess of the normal.

The following gives comparative rainfall data of the month for the various rainfall divisions of Burma :—

Province.	Division.	Number of rainy days. Average actual, April 1902.	Number of rainy days. Average normal, April.	Rainfall. Average actual, April 1902.	Rainfall. Average normal, April.	Rainfall. Variation of actual from normal, April 1902.	Percentage variation from normal.
				Inches.	Inches.	Inches.	
Burma	Tenasserim	3·5	5·0	1·99	3·99	−2·00	−50
	Lower Burma (Deltaic.)	0·4	2·5	0·26	1·83	−1·57	−86
	Central Burma.	0·3	1·6	0·15	0·94	−0·79	−84
	Upper Burma	3·4	2·2	1·29	1·15	+0·14	+12
	Arakan	3·4	1·7	2·12	1·50	+0·62	+41

Assam received daily showers from the 1st to the 5th. Fine weather prevailed during the next two days. General rain recommenced on the 8th and continued during the remainder of the month. The daily falls were heavier than usual, more especially in the Surma Valley, and the rainfall of the month was in considerable to large excess over the whole of the province.

The following table gives the most noteworthy falls (exceeding 5 inches) recorded in 24 hours during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. date.
			Inches.
Sylhet	Sephinjuri Bil	14th April.	5·40
Cachar	Jatinga Valley	26th ,,	5·45
Khasi and Jaintia Hills.	Cherrapoonjee Police station.	27th ,,	15·40
Sylhet	Lalakhal	,, ,,	10·05
Cachar	Nemotha	,, ,,	8·06
	Barkhola	,, ,,	6·50
	Bikrampur	,, ,,	5·80
Khasi and Jaintia Hills.	Jowai	28th ,,	7·92
Cachar	Maibong	,, ,,	5·73
	Mupa	,, ,,	5·35
Sylhet	Chandpur	30th ,,	6·97
	Habiganj	,, ,,	5·36

The rainfall of the month averaged 60 per cent in excess in the Assam Hills, 50 per cent in the Surma division and 39 per cent in the Brahmaputra Valley.

The following table gives data for the eight plains districts of the province:—

District.	Rainfall. Average actual, April 1902.	Average normal, April.	Variation of actual from normal, April 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	18·42	13·77	+4·65	+34
Sylhet	22·58	13·08	+9·50	+73
Goalpara	15·54	7·76	+7·78	+100
Kamrup	11·96	7·79	+4·17	+54
Darrang	9·18	6·95	+2·23	+32
Nowgong	9·73	5·53	+4·20	+76
Sibsagar	11·41	8·83	+2·58	+29
Lakhimpur	11·75	10·40	+1·35	+13

The rainfall of the month was exceptionally heavy in some parts of Bengal and was associated with a series of cold weather depressions which passed eastwards into Orissa or West Bengal.

The chief periods of rainfall were:—

1st.—The 3rd, when light to moderate rain was received over nearly the whole of Bengal Proper.

2nd.—The 5th, when moderate rain occurred in Bengal and Orissa and local showers in Chota Nagpur.

3rd.—The 9th, when Bengal obtained moderate rain and Bihar, Orissa and Chota Nagpur local showers.

4th.—The 11th, when moderate rain fell over the whole province with the exception of Bihar.

5th.—The 13th to the 26th, when throughout nearly the whole period moderate to heavy rain fell in Bengal and light to moderate showers in Bihar and Chota Nagpur. Orissa obtained a moderately heavy burst on the 17th and 18th, and numerous showers from the 13th to the 16th, and again on the 20th.

The following heavy falls in 24 hours were registered during this period:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tippera	Kasba	22nd April	5·61
Noakhali	Hatya	15th ,,	5·09
		22nd ,,	4·82
	Lakhimpur	15th ,,	4·75
		22nd ,,	4·56
Tippera	Chandpur	15th ,,	4·24
Backergunge	Daulatkhan	22nd ,,	4·18
Noakhali	Ramganj	15th ,,	4·15
Mymensingh	Durgapur	13th ,,	4·05
Dacca	Munshiganj	19th ,,	4·04
Khulna	Mollahat	16th ,,	4·02

6th.—The 27th to the 30th, when Central, North and East Bengal obtained general rain and Orissa and Bihar local thunder showers of little value. The daily falls were not so heavy as during the previous period.

The rainfall of the month was normal in amount in Chota Nagpur and North Bihar and more or less in excess over the remainder of the province, as is shown by the following comparative data:—

Division.	Rainfall. Average actual, April 1902.	Average normal, April.	Variation of actual from normal, April 1902.	Percentage variation from normal.	Number of rainy days. Average actual, April 1902.	Average normal, April.
	Inches.	Inches.	Inches.			
Eastern Bengal	13·52	4·24	+9·28	+219	12·6	5·0
Deltaic Bengal	5·88	2·31	+3·57	+155	8·8	3·5
Central Bengal	3·71	1·41	+2·30	+163	6·1	2·4
North Bengal	4·85	3·97	+0·88	+22	8·0	5·1
Bengal Hills	5·75	4·35	+1·40	+32	11·1	8·4
Orissa	3·13	1·23	+1·90	+154	5·2	2·2
Chota Nagpur	0·95	0·85	+0·10	+12	2·0	1·7
South Bihar	0·51	0·29	+0·22	+76	1·0	0·7
North Bihar	0·77	0·80	—0·03	—4	1·9	1·3

The preceding data indicate that the rainfall of the month was in very large excess in East, Deltaic and Central Bengal.

The following gives data for six districts representing the area of largest excess:—

District.	Rainfall. Average actual, April 1902.	Average normal, April.	Variation of actual from normal, April 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dacca	17·73	4·76	+12·97	+272
Mymensingh	9·20	4·31	+4·89	+113
Faridpur	9·52	3·86	+5·66	+147
Backergunge	12·44	3·27	+9·17	+280
Noakhali	15·68	4·33	+11·35	+262
Chittagong	11·20	3·98	+7·22	+181

The whole of the Punjab plains, with the exception of the western division, obtained rain on the 8th and between the 23rd and the 26th, but the falls were not heavy, being less than an inch in amount at the great majority of stations.

Showers were more frequent than usual in the hill districts, falling almost daily from the 7th to the 26th. The falls were moderately heavy, several stations obtaining

between 1 and 2 inches in 24 hours. The rainfall of the month in the Punjab was below the normal except in the hill and north divisions in which it was 22 and 18 per cent. in excess, respectively.

The following is a comparative statement of the rainfall of the month in this province :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, April 1902.	Average normal, April.	Variation of actual from normal, April 1902.	Percentage variation from normal.	Average actual, April 1902.	Average normal, April.
	Inches.	Inches.	Inch.			
South-East Punjab .	0·24	0·25	—0·01	— 4	0·3	0·6
South Punjab . .	0·23	0·35	—0·12	— 34	0·7	0·7
Central Punjab . .	0·47	0·64	—0·17	— 27	1·2	1·5
Punjab Submontane .	0·70	0·72	—0·02	— 3	1·8	1·3
Punjab Hills . .	2·91	2·39	+0·52	+ 22	5·7	3·5
North Punjab . .	1·89	1·60	+0·29	+ 18	3·9	3·1
West Punjab . .	0·12	0·50	—0·38	— 76	0·5	1·0

The month was drier than usual over the greater part of the United Provinces and Oudh. Moderate rain fell in the west-submontane and hill districts from the 7th to the 9th and again from the 23rd to the 26th, light rain in the western division on the 8th and 25th, and some local showers of no agricultural value in other divisions, chiefly on the 8th, 9th and 25th. The average total rainfall of the month was a tenth of an inch or less in all divisions with the exception of the following for which comparative data are given below :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, April 1902.	Average normal, April.	Variation of actual from normal, April 1902.	Percentage variation from normal.	Average actual, April 1902.	Average normal, April.
	Inches.	Inches.	Inch.			
United Provinces West.	0·11	0·16	—0·05	— 31	0·4	0·5
United Provinces Submontane, East.	0·18	0·25	—0·07	— 28	0·3	0·5
United Provinces Submontane, West.	0·68	0·32	+0·36	+112	1·7	0·8
United Provinces Hills .	1·75	1·11	+0·64	+ 58	3·7	2·6

There were two periods of disturbance and rainfall during the month in Baluchistan, coinciding roughly with the passage of the second and fifth storms of the month across that area. During the first period, which extended from the 5th to the 7th, showers fell over nearly the whole of the province, but the falls were small, nowhere exceeding half an inch in 24 hours. The second period lasted from the 15th to the 19th. Numerous showers occurred on these dates, but they were even lighter than during the first period, and the total precipitation of the month was barely half the small normal amount of the period.

Kashmir obtained almost daily rain during the period from the 6th to the 26th. The days of heaviest and most general precipitation were the 7th, 8th, 12th, 24th and 25th, when the following falls exceeding 1½ inches in amount in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jummoo . .	Punch	7th April .	2·41
,, . .	Kotli	,, ,, .	1·80
Kashmir . .	Sri Ranbir Singh Pora .	,, ,, .	1·78
Jummoo . .	Ramban . . .	,, ,, .	1·64
Kashmir . .	Uri	12th ,, .	1·76
,,	Pader	8th ,, .	1·53
Jummoo .	Pader	24th ,, .	3·05
,,	Punch	,, ,, .	2·26
,,	Udumpur . . .	,, ,, .	2·00
Kashmir . .	Karnal . . .	25th ,, .	2·03
,, . .	Sri Ranbir Singh Pora .	,, ,, .	1·74
Jummoo . .	Katli	,, ,, .	1·57
Kashmir . .	Domel	,, ,, .	1·53
Jummoo . .	Ramban . . .	26th ,, .	2·30
Kashmir . .	Kargil . . .	,, ,, .	1·63

The total precipitation of the month was almost certainly in considerable excess.

The following table gives data for six stations at which the excess was most marked :—

Station.	Rainfall.			
	Average actual, April 1902.	Average normal, April.	Variation of actual from normal, April 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ramban	6·24	2·79	+3·45	+124
Punch	6·36	2·80	+3·56	+127
Domel	5·39	4·19	+1·20	+ 29
Kargil	3·62	1·88	+1·74	+ 93
Dras	4·97	3·85	+1·12	+ 29
Anantnag	4·92	2·30	+2·62	+114

Rajputana received light local showers from the 2nd to the 7th, and again on the 16th, 17th, 24th and 25th which gave a mean total of less than a tenth of an inch for the whole province.

No rain fell in Central India beyond some scattered showers of little importance between the 3rd and the 10th. The total fall of the month in this area was 14 per cent below the very small normal of the period.

The eastern districts of the Central Provinces obtained light to moderate rain, accompanying thunderstorms, from the 4th or 5th to the 22nd and the remainder of the province, light local showers, during the first ten days of the month. The rainfall of the month was below the small normal of the month in the western and central divisions and in moderate excess in the eastern districts.

The following gives data for the three divisions of the province :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, April 1902.	Average normal, April.	Variation of actual from normal, April 1902.	Percentage variation from normal.	Average actual, April 1902.	Average normal, April.
	Inches.	Inch.	Inch.			
Central Provinces, West	0·11	0·24	−0·13	− 54	0·4	0·6
„ „ Central	0·22	0·30	−0·08	− 27	0·7	0·8
„ „ East	1·13	0·50	+0·63	+126	2·9	1·2

Fairly general showers were received in Berar during the first five days of the month. The total rainfall of the month averaged 0·31 inch or 0·07 inch above normal.

Little or no rain fell during the month in Sind, Gujarat, Cutch and Kathiawar. The North Kanara district of the Konkan obtained numerous but, in general, light thundershowers from the 1st to the 8th and again on the 16th and 17th.

Light to moderate rain occurred in the Dharwar, Bijapur and Belgaum districts of the Bombay Deccan, and some light showers in the Satara and Sholapur districts, during the first eight or nine days of the month.

The following table, giving a comparison of the actual and normal rainfall of the month for the six divisions of the Presidency, shows that the precipitation of the month was small in amount and less than the normal over nearly the whole area :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, April 1902.	Average normal, April.	Variation of actual from normal, April 1902.	Percentage variation from normal.	Average actual, April 1902.	Average normal, April.
	Inch.	Inches.	Inch.			
Konkan	0·09	0·45	−0·36	−80	0·3	0·8
Bombay Deccan	0·56	1·13	−0·57	−50	1·1	2·3
Khandesh	0·08	0·13	−0·05	−38	0·3	0·3
Gujarat	0·01	0·02	−0·01	−50	0	0·1
Kathiawar and Cutch	0·04	0·03	+0·01	+33	0·2	0·1
Sind	0·01	0·13	−0·12	−92	0·1	0·3

Showers were more frequent than usual in Mysore and the rainfall of the month in that area was 44 per cent. above the normal.

The Madras Presidency received rain chiefly during the period from the 3rd to the 24th. The rainfall was general during the period in the East Coast (North), Malabar, Coorg and the Nilgiris and light and partial in the East Coast (South and Central), which obtained only light showers, chiefly on the 22nd.

The following gives the most noteworthy daily falls recorded during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Madura	Usilampatti.	3rd April	3·53
Travancore State	Shenkottah.	„ „	3·52
Tinnevelly	Sankaranayinar Koyil	6th „	2·65
Vizagapatam	Gunupur	13th „	2·56
Vizagapatam	Jeypore	15th „	3·24
Ganjam	Udayagiri	18th „	3·03
Travancore State	Kunnatnad	19th „	2·99
Travancore State	Kottayam	21st „	4·78
Travancore State	„ Engineer's office.	„ „	4·18
Godavari	Bhadrachalam	22nd „	2·84
Nellore	Darsi	„ „	2·75
Malabar	Cherpulcherry	23rd „	2·63
Travancore State	Meenachil	30th „	2·76

The rainfall of the month was in slight to moderate excess in Central Madras and the East Coast (North), normal in East Coast (Central) but more or less in defect in the remainder of the Presidency. The deficiency was greatest in actual amount in Malabar which obtained 1·52 inches less than its normal fall.

The following gives comparative data for the seven rainfall divisions of the Presidency :—

Division.	Rainfall				Number of rainy days.	
	Average actual, April 1902.	Average normal, April.	Variation of actual from normal, April 1902.	Percentage variation from normal.	Average actual, April 1902.	Average normal, April.
	Inches.	Inches.	Inches.			
Malabar	1·83	3·35	−1·52	−45	3·8	4·8
Madras South Central	1·25	1·70	−0·45	−26	2·1	2·8
East Coast, North	1·59	0·85	+0·74	+87	2·5	1·5
Madras, Central	0·79	0 61	+0·18	+30	2·4	1·3
East Coast, Central	0·46	0·46	0	0	0·6	0·9
East Coast, South	0·16	0·92	−0·76	−83	0·3	1·4
Madras South	1·04	2·22	−1·18	−53	1·8	3·4

HEM RAJ.

Table I.—Abstract of Observations taken at 8 A.M at 221 Stations in India, Burma, etc., in April, 1902.

Table

Abstract of Observations taken at 8 AM. at 221

Number of District.	Meteorological Province or District.	Station.	Elevation of barometern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.				+·014								95·3	+0·2	76·9	+0·7	86·1	+0·5	18·3					25·6
1	Tenasserim and Bay Islands.	Port Blair	61	29·868	+·015	29·860	29·921	2nd	29·806	22nd	·115	83·9	93·3	+0·8	79·5	+0·7	86·5	+0·8	13·8	95·2	26th	76·8	1st	18·4
		Mergui	96	29·840	+·019	29·868	29·904	2nd	29·783	22nd	·121	81·5	91·5	−0·4	75·0	+1·3	83·3	+0·5	16·5	95·6	28th	72·4	2nd & 18th.	23·2
		Tavoy	26	29·922	?	29·879	29·937	2nd	29·865	22nd	·122	81·5	93·1	+0·1	74·8	+0·6	84·5	+0·4	19·3	97·7	28th & 30th.	71·0	2nd	26·7
		Moulmein*	94	29·834	+·017	29·865	29·918	2nd	29·768	18th	·150	83·5	96·7	?	76·9	+0·5	86·8	?	19·8	100·4	30th	72·8	3rd	27·6
2	Lower Burma	Rangoon	41	29·870	+·002	29·848	29·953	15th	29·799	18th	·154	81·5	99·0	+0·4	76·8	+0·6	87·9	+0·5	22·2	102·6	27th	72·9	1st	29·7
		Bassein	27	29·895	?	29·857	29·980	15th	29·836	21st	·144	82·3	97·2	+1·0	77·8	+2·3	87·5	+1·7	19·4	100·7	25th & 30th.	74·6	2nd	26·1
		Diamond Island	41	29·887	+·012	29·863	39·954	2nd	29·812	21st	·142	84·2	94·5	?	81·0	+2·7	87·8	?	13·5	98·4	24th & 29th.	79·2	1st, 3rd & 4th.	19·2
5	Arakan	Akyab	20	29·896	+·018	29·859	30·024	15th	29·782	22nd	·242	79·9	90·9	−0·9	74·5	−1·5	82·7	−1·2	16·4	93·9	12th & 13th.	68·2	23rd	25·7
3	Central Burma	Toungoo	183	29·719	+·016	29·843	29·901	2nd & 15th.	29·646	27th	·155	86·0	100·3	?	76·2	+0·2	88·3	?	24·1	104·1	28th & 29th.	70·1	17th	34·0
	II.—Burma Inland				+·045								98·9	−1·4	73·5	−0·1	86·2	−0·8	25·4					39·4
3	Central Burma	Thayetmyo	130	29·765	+·039	29·836	29·885	15th	29·687	27th	·198	85·9	103·5	+0·5	77·6	+1·8	90·6	+1·2	25·9	108·7	28th & 30th.	70·6	1st & 4th.	38·1
4	Upper Burma	Minbu	165	29·731	+·040	29·838	29·855	15th	29·616	27th	·239	84·7	103·0	−0·4	77·8	+0·9	90·4	+0·3	25·2	109·6	28th	73·1	20th	36·5
		Yamethin	657	29·233	+·032	29·836	29·231	15th	29·134	27th	·197	84·3	103·2	+0·9	76·0	−0·1	89·6	+0·4	27·2	107·5	30th	69·2	17th	38·3
		Mandalay	250	29·655	+·059	29·855	29·764	15th	29·528	27th	·236	84·0	101·6	−0·7	77·4	−0·4	89·5	−0·6	24·2	111·1?	28th	70·8	23rd	40·3
		Kindat	377	29·525	+·057	29·864	29·598	16th	29·383	22nd	·215	73·5	92·1	−4·7	66·5	−0·9	79·3	−2·8	25·6	103·3	9th	57·8	17th	45·5
		Bhamo	381	29·517	+·045	29·862	29·612	2nd	29·396	22nd	·216	70·9	89·9	−4·0	65·5	−2·1	77·7	−3·1	24·4	99·0	8th	61·1	2nd	37·9
4(a)	Burma Hill Station.	Lashio		27·124	+·011		27·218	2nd	27·016	27th	·202	70·7	89·5	−1·4	61·4	−1·5	75·5	−1·5	28·1	97·5	28th	52·5	18th	45·0
	III.—Assam				+·039								80·8	−4·3	66·1	−2·1	73·5	−3·2	14·7					29·2
7	Surma	Silchar	104	29·814	+·037	29·872	29·915	15th	29·665	27th	·250	73·3	85·7	−2·8	67·6	−1·6	76·7	−2·2	18·1	95·6	7th	64·8	24th	30·8
9	Brahmaputra	Sibsagar	333	29·586	+·039	29·886	29·700	15th	29·376	27th	·324	67·7	78·0	−4·5	64·9	−1·6	71·5	−3·1	13·1	88·2	8th	61·0	4th & 17th.	27·2
		Dhubri	115	29·761	+·040	29·834	29·858	2nd	29·555	27th	·303	71·7	83·1	−5·6	67·6	−3·1	75·4	−4·4	15·5	92·2	8th	61·7	16th	30·5
		Tezpur	252	29·637		29·856	29·744	15th	29·417	27th	·327	69·4	80·1		66·2		73·2		13·9	89·6	8th	63·4	9th, 16th & 17th.	26·2
		Dibrugarh	353	29·565		29·888	29·694	2nd	29·364	22nd	·330	68·5	77·3		64·4		70·9		12·9	88·2	8th	56·9	17th	31·3
	IV.—Bengal and Orissa				+·022								91·1	−3·9	72·5	−1·4	81·8	−2·7	18·7					32·3
6	East Bengal	Chittagong	87	29·813	+·022	29·849	29·910	2nd	29·703	22nd	·207	78·3	88·7	−0·2	71·5	−2·2	80·1	−1·2	17·2	95·5	6th	65·1	24th	30·4
		Noakhali	43	29·836		29·826	29·928	2nd	29·719	22nd	·209	79·1	87·2		71·2		79·2		16·0	93·9	8th	64·4	23rd	29·5
		Comilla	36	29·839		29·824	29·925	2nd	29·722	22nd	·203	76·0	89·8		70·0		79·9		19·8	98·8	8th	63·9	24th	34·9
		Sirajganj	49	29·805		29·804	29·911	3rd	29·631	27th	·280	75·7	89·7		70·3		80·0		19·4	100·5	1st	61·3	11th	39·2
		Narayanganj	26	29·848	+·037	29·823	29·947	3rd	29·717	27th	·230	77·2	88·3	−4·9	71·8	−2·5	80·1	−3·7	16·5	94·1	7th, 8th & 9th.	65·2	24th	28·9
		Barisal	13	29·840†	+·007	29·798†	29·947	2nd	29·720	22nd	·227	80·6	89·5	−2·7	72·9	−2·5	81·2	−2·6	16·6	94·8	8th	66·1	22nd	28·7
		Mymensingh	59	29·816	+·036	29·827	29·896	5th	29·660	27th	·236	74·4	85·0	−4·8	69·7	−2·5	77·9	−3·7	16·3	95·6	8th	65·1	16th	30·5
10	Deltaic Bengal	Faridpur	46	29·819		29·813	29·969	3rd	29·671	27th	·298	77·2	89·9		70·3		80·1		19·6	95·5	2nd	63·0	15th 3rd &	32·5
		Jessore	33	29·813	+·018	29·793	29·934	3rd	29·647	27th	·287	79·2	92·3	−4·9	72·3	−2·8	82·3	−3·9	20·0	99·0	1st	67·2	24th	31·8
		Calcutta	21	29·816	+·014	29·783	29·936	6th	29·676	22nd	·260	81·5	92·1	−3·5	74·5	−1·2	83·3	−2·4	17·6	99·2	1st	67·6	22nd	31·6
		Saugor Island	25	29·819	+·016	29·788	29·929	6th	29·674	22nd	·255	83·4	89·8	−1·0	80·1§	+0·2	85·1§	−0·4	9·7	91·9	30th	73·0	16th	18·9
		Krishnagar	47	29·789		29·785	29·915	3rd	29·626	27th	·289	79·6	94·4		72·6		83·5		21·8	100·8	1st & 2nd,	66·2	3rd	34·6
		Midnapore	146	29·671		29·768	29·791	5th	29·536	27th	·255	81·5	96·4		75·1		85·8		21·3	104·4	1st	65·7	9th	38·7

* Observations of 29 days.

§ Mean of 17 days.

I.

Stations in India, Burma, etc., in April, 1902.

Wind Direction, Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity: Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M.: Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall: Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec., 1901, to 30th April, 1902.	Normal rainfall for period, 1st Dec. to 30th April.	Variation from normal of period, 1st Dec. to 30th April.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				1·75	2·92	−1·17					I.—Burma Coast and Bay Islands.		
1	3	3	2	5			6	10	N 29° W	4·0		4·9	−18	82	·959	2·7	0			0	3·33	− 3·33	8·09	11·77	− 3·68	0	Port Blair .	Tenasserim and Bay Islands.	1
25	2			1	1		1	1	N	2·8	2·5	2·1	+19	83	·878	3·9	9	6·70	+2·30	4·53	6·54	− 2·01	13·66	12·84	+ 0·82	1·25	Mergui.		
29						1			S 45° W	1·5				91	·974	1·9	7	5·30	+1·70	3·09	3·78	− 0·69	4·99	5·94	− 0·95	1·45	Tavoy.		
1		2	1	4	4	13	2	2	S 29° W	3·4	3·8	3·2	+19	74	·849	2·9	4	5·00	−1·00	1·55	3·11	−1·56	1·78	4·13	− 2·35	0·85	Moulmein.		
										8·7	7·3	4·0	+83	78	·839	2·5	P.	2·20	P	P	1·83	P	P	2·55	P	P	Rangoon .	Lower Burma .	2
2								28	N 45° W	6·2		5·7	+ 9	80	·883	2·6	1	2·10	−1·10	0·80	1·55	− 0·75	1·01	2·12	− 1·11	0·80	Bassein.		
2	4	2	1				8	13	N 45° W	7·9	7·9	5·1	+55	74	·876	3·1	0	2·09	−2·09	0	1·46	− 1·46	0·28	2·49	− 2·21	0	Diamond Island.		
	10	14	1	3	1			1	N 35° E	3·0	2·9	7·2	−60	83	·858	4·2	5	1·80	+3·20	3·97	1·28	+ 2·69	4·40	2·68	+ 1·72	1·48	Akyab .	Arakan .	5
2	1			20	4	1		2	S 37° E	9·7	9·6	4·0	+140	64	·799	3·7	0	3·10	−3·10	0·02	2·28	− 2·26	0·87	2·79	− 1·92	0·02	Toungoo .	Central Burma.	3
																				1·15	1·25	−0·10					II.—Burma Inland.		
	4	2		1	7	5	9	1	S 66° W	6·4		7·0	− 9	57	·703	3·2	2	1·60	+0·40	1·00	0·90	+ 0·10	1·03	1·14	- 1·11	0·65	Thayetmyo .	Central Burma.	3
2	2	1		13		1	2	9	S 45° E	6·4	7·6			53	·641	2·7	0	1·20	−1·20	0	0·85	− 0·85	0·51	1·55	- 1·04	0	Minbu .	Upper Burma .	4
11	1			12	5			1	S 33° E	2·7	2·8			57†	·675†	1·3	2	3·60	−1·60	0·58	1·52	− 0·94	2·06	2·68	- 0·62	0·30	Yamethin.		
	6	7		1	9	2		5	N 12° E	6·8	6·9			57	·662	2·1	3	2·40	+0·60	0·58	1·12	− 0·54	0·58	1·67	- 1·09	0·35	Mandalay.		
16	5	4		1	1	1		2	N 12° E	1·8	1·9			79	·655	4·2	8	3·20	+4·80	2·37	1·46	+ 0·91	3·21	3·63	- 0·42	0·46	Kindat.		
3	3	11	2	3	2	1	1	4	N 40° E	3·9	4·6			81	·611	4·8	7	4·80	+2·20	2·36	1·66	+ 0·70	3·20	3·85	- 0·65	0·49	Bhamo.		
	3	10	5	2	3	2	3	2	N 54° E	3·3				67	·490	5·8	6			2·92	2·20	+ 0·72	3·72	4·12	- 0·40	0·94	Lashio,	Burma Hill Station,	4(a)
																				12·54	9·28	+4·15					III.—Assam.		
26	1	1	2						N 57° E	1·7	2·9	3·4	−15	83	·689	6·4	18	14·29	+3·71	21·70	13·62	+ 8·08	27·96	25·72	+ 2·24	4·30	Silchar .	Surma .	7
10		20							N 45° E	2·9	2·6	2·9	−10	95	·644	8·5	17	13·50	+2·50	12·58	9·50	+ 3·08	17·78	18·47	− 0·69	2·02	Silsagar .	Brahmaputra .	8
1		14	13	1			1		N 68° E	7·4	8·7	8·0	+9	86	·671	7·1	14	7·40	+6·60	6·01	4·73	+ 1·28	9·68	7·59	+ 2·09	0·95	Dhubri.		
		13	14	2		1			N 74° E	5·8	6·1			86	·617	7·3	17	11·00	+6·00	10·67			13·77			2·86	Tezpur.		
	3	12	8	2	1	1	1	2	N 56° E	3·4	3·2			87	·593	3·3	17	13·50	+3·50	11·72			16·89			2·15	Dibrugarh.		
																				6·77	2·65	+4·12					IV.—Bengal and Orissa.		
	2	3	6	12	6	1			S 56° E	7·6	7·5	7·1	+ 6	79	·768	5·1	11	4·42	+6·58	14·00	3·85	+10·15	14·88	8·72	+ 6·16	3·19	Chittagong .	East Bengal .	6
	2	3	4	11	6	2	1	1	S 48° E	5·2	4·8			81	·805	4·3	11	4·61	+6·39	15·69	4·66	+11·03	17·50	9·23	+ 8·27	3·50	Noakhali.		
5	1		1	3	20				S 8° E	6·2				84	·758	2·3	14	6·46	+7·54	20·07	6·27	+13·80	21·88	10·74	+11·14	4·10	Comilla.		
15		1	6	2	6				S 49° E	3·1	3·2			88	·781	5·3	10	4·60	+5·40	4·42	2·95	+ 1·47	5·03	5·70	- 0·67	1·56	Sirajganj.		
3	1	2	3	10	8	3			S 31° E	7·5		6·7	+12	87	·816	7·5	14	6·59	+7·41	21·96	4·51	+17·45	24·88	9·08	+15·80	4·75	Narayanganj.		
2	2	1	1	11	8	2	1	2	S 25° E	5·6				83	·867	4·9	14	4·29	+9·71	13·73	3·12	+10·61	15·27	7·39	+ 7·88	2·40	Barisal.		
5			12	12	1				S 65° E	4·8	4·3			84	·716	6·8†	15	6·23	+8·77	11·60	5·37	+ 6·23	12·68	8·98	+ 3·70	1·73	Mymensingh.		
	1	3	2	11	10	2		1	S 34° E	6·3	5·3			86	·812	3·4	13	6·00	+7·00	9·28	4·16	+ 5·10	12·56	8·35	+ 4·21	1·62	Faridpur .	Deltaic Bengal.	10
9	2	2	1	10	6				S 45° E	2·6	2·5	4·5	−44	85	·852	6·3	12	4·68	+7·32	7·89	3·18	+ 4·71	10·03	6·91	+ 3·12	1·13	Jessore.		
2			2	3	14	8		1	S 5° W	7·5		7·5	0	79	·859	6·2	8	2·92	+5·08	6·11	1·43	+ 4·68	7·62	4·16	+ 3·46	2·41	Calcutta.		
		1		3	18	7		1	S 7° W	21·2		16·7	+27	83	·952	6·4	5	2·00	+3·00	2·37	0·85	+ 1·52	3·69	3·84	- 0·15	1·12	Saugor Island		
	1		5	9	12	3			S 24° E	6·1‡				81	·825	5·4	8	3·39	+4·61	2·68	2·43	+ 0·25	4·50	5·17	- 0·67	0·61	Krishnagar.		
5	1	1		4	18		1		S 9° E	5·5	4·9			79	·852	2·5	11	3·10	+7·90	6·15	1·78	+ 4·37	6·80	5·29	+1·51	1·08	Midnapore.		

‡ Mean of 16 days.

† Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 221

Number of District.	Meteorological Province or District.	Station.	Elevation of barometer cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and corrected for gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal	Bankura	298	29·494		29·743	29·626	5th	29·358	27th	·268	81·4	98·8		75·0		87·0		23·8	104·3	1st & 2nd.	67·4	11th	36·9
		Raniganj	334	29·493		29·779	29·613	6th	29·348	27th	·265	78·5	97·2		73·5		85·4		23·7	104·7	2nd	66·8	11th	37·9
		Burdwan	99	29·729	+·018	29·777	29·854	5th	29·576	27th	·278	79·5	95·0	−5·6	73·8	−1·9	84·4	−3·8	21·2	104·4	1st	65·9	11th	38·5
		Naya Dumka	489	29·328		29·777	29·446	6th	29·182	27th	·264	80·5	95·6		73·4		84·5		22·2	105·2	28th	65·9	11th	39·3
		Berhampore	67	29·763	+·022	29·778	29·887	3rd	29·600	27th	·287	78·1	94·8	−5·2	72·5	−2·1	83·7	−3·7	22·3	102·3	2nd	67·2	11th	35·1
		Rampur Boalia.	70	29·769		29·789	29·887	5th	29·601	27th	·286	78·0	92·4		71·6		82·0		20·8	101·0	2nd	63·0	18th	38·0
		Malda	72	29·749		29·773	29·864	3rd	29·573	27th	·291	77·0	91·8		70·9		81·4		20·9	100·1	1st	66·0	11th	34·1
		Bogra	61	29·776	+·026	29·791	29·874	3rd	29·607	27th	·267	73·5	90·2	−6·0	69·5	−2·4	79·8	−4·2	20·7	100·3	2nd	63·5	16th	36·8
12	North Bengal	Dinajpur	123	29·714	P	29·794	29·832	3rd	29·537	27th	·295	73·1	88·0	−6·6	69·3	−1·4	78·7	−4·0	18·7	94·8	2nd & 8th.	64·0	16th	30·8
		Rangpur	123	29·753		29·833	29·847	3rd & 6th.	29·569	27th	·278	73·8	86·1		68·3		77·2		17·8	92·7	8th	61·8	16th	30·9
		Jalpaiguri	284	29·591	+·043	29·839	29·692	3rd	29·402	27th	·290	72·6	85·4	−4·1	67·7	−0·5	76·6	−2·3	17·7	90·4	8th	62·1	16th	28·3
		Cooch Behar	156	29·727		29·842	29·827	6th	29·537	27th	·290	72·8	84·0		68·3		76·2		15·7	90·6	8th	63·1	16th	27·5
17	North Bihar	Purnea	125	29·718	+·044	29·799	29·826	3rd	29·530	27th	·296	75·5	91·5	−5·5	69·3*	−0·7	80·5*	−3·1	22·2	100·3	28th	63·3	26th	37·0
14	Orissa	Balasore	48	29·786	+·007	29·779	29·897	5th	29·645	22nd	·252	82·0	94·9	−2·6	75·9	−0·1	85·4	−1·4	19·0	103·5	28th	69·9	5th	33·6
		False Point.	21	29·831	+·009	29·794	29·930	6th	29·689	22nd	·241	83·0	88·4	−1·5	78·0	+0·4	83·2	−0·6	10·4	92·0	3rd	69·6	6th	22·4
		Cuttack	80	29·757	+·004	29·780	29·871	3rd	29·582	22nd	·289	82·6	99·0	−3·0	77·4	−0·6	88·2	−1·8	21·6	104·4	1st & 27th.	70·7	5th	33·7
		Puri	24	29·828		29·791	29·933	6th	29·684	22nd	·249	82·0	87·2		78·0		82·6		9·2	88·7	9th, 11th & 26th.	70·6	18th	18·1
	V.—Gangetic Plain and Chota Nagpur.				−·002								99·4	−0·9	72·6	0	86·0	−0·4	26·9					40·2
15	Chota Nagpur	Hazaribagh.	2,007	27·793	−·015	29·733	27·919	6th	27·673	22nd	·246	80·9	97·1	−1·0	73·1	+0·6	85·1	−0·2	24·0	105·8	27th	64·3	9th	41·5
		Ranchi	2,128	27·695	−·004	29·753	27·808	6th	27·577	22nd	·231	80·6	96·1	−1·0	72·6	+0·5	84·4	−0·3	23·5	104·6	27th	64·3	11th	40·3
		Daltonganj	730?	29·066		29·746	29·200	6th	28·946	21st	·254	?	?	?	?		?		?	?	?	?	?	?
		Purulia		28·986		29·748	29·109	5th	28·857	22nd	·252	81·9	100·8		74·1		87·4		26·7	108·7	27th	65·8	11th	42·9
		Chaibassa	760	29·042	0	29·751	29·169	6th	28·912	22nd	·257	82·2	101·9	−1·7	75·9	−0·1	88·9	−0·9	26·0	110·1	27th	67·5	18th	42·6
16	South Bihar	Gaya	375	29·400	−·014	29·729	29·525	6th	29·255	22nd	·270	83·3	102·2	−1·2	76·2	+1·3	89·2	+0·1	26·0	110·3	27th	69·8	9th & 11th.	40·5
		Dehri	351	29·430		29·735	29·558	6th	29·293	22nd	·265	83·6	102·6		76·1		89·4		26·5	110·4	27th	70·5	3rd & 12th.	39·9
		Patna	183	29·615	+·008	29·752	29·726	6th	29·460	27th	·266	80·0	97·9	−2·7	73·0	−0·5	85·5	−1·6	24·9	104·8	13th	66·3	19th	38·5
		Arrah	190	29·612		29·755	29·735	6th	29·477	22nd	·258	80·8	99·9		P		P		P	104·5	29th	?		?
		Buxar	239	29·545		29·740	29·689	6th	29·378	22nd	·311	81·4	101·0		73·7		87·3		27·3	106·5	27th	63·0	18th	43·5
17	North Bihar	Bhagalpur	160	29·656		29·771	29·767	3rd	29·496	27th	·271	78·1	94·8		72·0		83·4		22·8	102·9	28th	67·6	22nd	35·3
		Darbhanga	166	29·646	+·015	29·769	29·765	6th	29·461	27th	·304	76·6	92·7	−3·4	72·0	+0·1	82·3	−1·7	20·7	100·1	28th	65·4	16th	34·7
		Muzaffarpur	178	29·643		29·777	29·757	6th	29·466	27th	·291	77·6	93·9		70·9		82·4		23·0	101·2	28th	65·3	9th	35·9
		Motihari	224	29·585		29·770	29·723	6th	29·430	22nd & 27th.	·293	75·9	94·3		69·5		82·0		24·8	101·8	28th	63·3	3rd	38·5
		Chapra	181	29·614		29·750	29·736	6th	29·477	22nd	·259	80·1	98·5		72·8		85·7		25·7	103·9	13th	66·7	12th	37·2
18	United Provinces (East).	Benares	267	29·509	−·009	29·731	29·653	6th	29·364	22nd	·289	83·1	103·4	+0·3	73·1	+1·2	88·3	+0·8	30·3	109·3	27th	65·7	3rd	43·6
		Allahabad	309	29·455	P	29·717	29·592	6th	29·315	21st	·277	85·0	104·6	+0·8	73·4	+1·0	89·0	+0·9	31·2	110·1	25th	67·3	1st & 3rd.	42·8
23	United Provinces (East Submontane).	Gorakhpur	257	29·534	+·019	29·750	29·650	6th	29·359	22nd	·291	78·5	98·7	−1·7	71·3	−1·1	85·0	−1·4	27·4	103·6	29th	66·5	9th, 11th & 12th.	37·1
19	South Oudh	Lucknow	368	29·395	−·012	29·722	29·516	6th	29·231	22nd	·285	81·7	102·7	+0·3	70·1	−0·8	86·4	−0·3	32·6	106·8	24th & 30th.	63·3	2nd	43·5
20	North Oudh	Bahraich	403	29·367	−·001	29·732	29·475	6th	29·185	22nd	·290	81·1	99·8	+0·2?	70·1	+0·4?	85·0	+0·3?	29·7	103·6	13th & 30th.	64·0	2nd	39·6
21	United Provinces (Central).	Cawnpore	416	29·348	−·010	29·718	29·472	2nd	29·196	22nd	·276	82·6	102·8	+0·6	70·7	−1·6	86·8	−0·5	32·1	108·0	25th	64·5	2nd	43·5
		Mainpuri	516	29·254	−·005	29·730	29·377	2nd	29·099	22nd	·278	81·7	102·5	0	70·4	−0·1	86·5	−0·1	32·1	107·3	21st	64·5	2nd	42·8

* Mean of 29 days.

I—*continued.*

stations in India, Burma, etc., in April, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec., 1901 to 30th April 1902.	Normal rainfall for period, 1st Dec. to 30th April.	Variation from normal of period, 1st Dec. to 30th April.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
6		4	3	7	3	5	2		S 29° E	5·1	5·9			71	·759	4·5	5	3·00	+2·00	2·52	1·53	+0·99	4·43	4·33	+ 0·10	0·85	Bankura .	Central Bengal,	11
20		1	4	3	1		1		S 72° E	1·6				79	·772	3·9	6	2·47	+3·53	4·77	1·59	+3·18	6·75	3·91	+ 2·84	2·04	Raniganj.		
3		3	3	3	7	9	2		S 4° W	5·2	5·2	4·8	+ 8	83	·838	6·2	7	3·48	+3·52	5·60	1·75	+3·85	6·81	4·41	+ 2·40	1·58	Burdwan.		
2		1	5	9	7	2	2	2	S 28° E	4·3	4·8			72	·747	4·9	6	2·38	+3·62	1·87	1·02	+0·85	3·35	3·28	+ 0·07	0·75	Naya Dumka		
5		2	5	4	12	2			S 28° E	3·6	3·9	5·2	−25	81	·787	7·0	7	2·56	+4·44	4·50	1·24	+3·26	7·34	3·70	+ 3·64	1·87	Berhampore.		
14		1	1	5	4	3	2		S 6° E	2·4	2·4			81	·779	4·5	5	2·95	+2·05	5·13	1·81	+3·32	6·61	4·21	+ 2·40	1·63	Rampur Boalia.		
		4	17	5	4				S 78° E	2·2	2·0			80	·749	4·1	7	1·81	+5·19	2·63	1·35	+1·28	3·99	3·84	+ 0·05	0·96	Maida.		
6	16	1		2	5				N 11° E	P				86	·720	5·7	10	3·81	+6·19	3·43	2·07	+1·36	5·17	4·84	+ 0·33	0·68	Bogra.		
	1	12	13	3	1				N 76° E	6·0	5·8			83	·685	5·9	5	3·21	+1·79	3·13	2·33	+0·80	6·50	3·92	+ 2·58	1·78	Dinajpur .	North Bengal .	2
1	1	10	14	2	2				N 78° E	4·0	4·3			85	·712	2·9	6	4·39	+1·61	5·03	3·16	+1·87	9·94	5·33	+ 4·61	2·95	Rangpur.		
	4	12	9	4	1				N 66° E	2·3	3·0			82	·660	2·4	8	5·53	+2·47	3·80	3·85	−0·05	7·62	6·07	+ 1·55	1·18	Jalpaiguri.		
12		4	9	5					S 86° E	1·8	1·9			85	·687	6·5	9	7·41	+1·59	6·75	5·88	+0·87	11·67	8·47	+ 3·20	2·75	Cooch Behar.		
3		12	11	3					N 72° E	5·3	4·7	3·6	+31	77	·686	3·4	3	1·93	+1·07	1·45	1·22	+0·23	3·94	2·79	+ 1·15	0·64	Purnea .	North Bihar .	17
2			1		12	14	1		S 24° W	7·5				74	·813	4·2	6	3·58	+2·42	4·24	1·86	+2·38	6·68	5·33	+ 1·35	1·08	Balasore .	Orissa . .	14
	1			1	6	13	3	1	S 42° W	14·3	13·7	13·3	+ 3	83	·943	6·6	5	1·84	+3·16	1·74	0·73	+1·01	2·29	3·98	— 1·69	0·89	False Point.		
9					8	12	1		S 30° W	4·1		5·1	−20	77	·868	4·6	8	1·97	+6·03	3·85	0·98	+2·97	4·75	3·10	+ 1·65	1·24	Cuttack.		
4	1	1			1	22	1		S 47° W	15·1	14·2			86	·950	3·9	P	1·17	P	P	0·80	P	0·17*	2·5*	— 2·38	P	Puri.		
																				0·49	0·44	+0·05					V.—Gangetic Plain and Chota Nagpur.		
			1	2	7	15	3	2	S 36° W	8·9	7·9	8·4	− 6	42	·442	3·9	2	1·35	+0·65	0·31	0·39	−0·08	1·84	2·63	− 0·79	0·16	Hazaribagh	Chota Nagpur .	15
2		1	1	1	7	12	1	5	S 43° W	6·8	8·0			47	·493	2·7	1	2·16	−1·16	0·10	0·84	−0·74	2·46	3·95	− 1·49	0·10	Ranchi.		
27				1		1	1		S 45° W	2·8	3·3			P	P	1·3	1	0·70	+0·30	0·26	0·27	−0·01	1·21	2·48	− 1·27	0·21	Daltonganj.		
25		1	1			1	2		W	1·3	1·6			64	·694	2·8	3	2·39	+0·61	0·63	0·99	−0·36	2·70	3·64	− 0·94	0·32	Purulia.		
10		1	1		3	8	6	1	S 58° W	2·4	2·1			65	·722	1·9	4	2·06	+1·94	1·50	1·36	+0·14	1·74	3·91	− 2·17	1·04	Chaibassa.		
3	1	11	2	2	3	5	3		N 79° E	4·5	4·0	3·3	+ 5	62	·710	3·0	1	0·58	+0·42	0·15	0·15	0	0·79	2·09	− 1·30	0·11	Gaya . .	South Bihar .	16
1	1		8	2	8	8	1	1	S 9° E	6·2	5·5			43	·490	3·0	0	0·41	−0·41	0·08	0·10	−0·02	1·60	2·06	− 0·46	0·08	Dehri.		
		9	15	3	2		1		N 85° E	4·5	5·4	4·4	+23	65	·664	2·1	1	0·58	+0·42	0·72	0·27	+0·45	1·06	1·92	− 0·86	0·72	Patna.		
9		5	1	1		2	2	10	N 29° W	3·5	3·6			52	·546	1·3	1	0·65	+0·45	0·60	0·47	+0·13	0·99	2·56	− 1·57	0·60	Arrah.		
		2	14	2	1	1	9	1	S 81° E	13·5†	12·3†			50	·537	2·5	1	0·35	+0·65	1·47	0·15	+1·32	1·56	1·93	− 0·37	1·47	Buxar.		
5		11	12	2					N 74° E	5·3	5·0			72	·694	3·3	3	1·45	+1·55	1·98	0·88	+1·10	2·59	2·62	− 0·03	0·75	Bhagalpur .	North Bihar .	17
		1	15	13	1				S 68° E	4·2		5·1	−18	77	·707	1·8	3	1·47	+1·53	0·87	0·70	+0·17	3·10	2·36	+ 0·74	0·46	Darbhanga.		
		4	14	11			1		S 78° E	6·1				74	·702	1·1	2	0·90	+1·10	0·63	0·47	+0·16	2·41	2·23	+ 0·18	0·35	Muzaffarpur.		
		3	25	1				1	N 86° E	5·0	4·8			71	·639	1·5	3	1·23	+1·77	0·70	0·68	+0·02	2·76	2·27	+ 0·49	0·35	Motihari.		
2	1		17	6	1	2	1		S 72° E	4·4	3·9			63	·635	2·3	1	0·55	+0·45	0·30	0·32	−0·02	0·82	2·02	− 1·20	0·30	Chapra.		
10		1	9	4		3	2	1	S 65° E	3·1	3·5	5·0	−30	57	·646	2·5	0	0·40	−0·40	0	0·13	−0·13	0·51	1·72	− 1·18	0	Benares .	United Provinces (East).	18
3	1	3	6	3	4	2	5	3	S 38° E	4·9	5·6	4·9	+14	42	·503	2·6	0	0·20	−0·20	0	0·13	−0·13	0·64	1·86	− 1·22	0	Allahabad.		
4	2	14	6		1	1	1	1	N 50° E	2·4		4·4	−45	63	·619	3·9	1	0·50	+0·50	0·161	0·45	−0·29	0·40	2·17	− 1·77	0·10	Gorakhpur .	United Provinces (East Submontane).	23
7	2	1	9	1	2	1	7		S 75° E	2·2	2·4	4·4	−45	41	·444	3·9	0	0·40	−0·40	0	0·04	−0·04	0·06	2·15	− 2·09	0	Lucknow .	South Oudh .	19
4	1	2	4	13			1		S 60° E	3·4	3·3			55	·555	3·0	1	0·80	+0·10	0·21	0·40	−0·19	0·45	3·24	− 2·79	0·12	Bahraich .	North Oudh .	20
16		2	2	2	1	4	3		S 14° W	2·6				39	·419	1·9	0	0·40	−0·40	0	0·03	−0·03	0·15	1·62	− 1·47	0	Cawnpore .	United Provinces (Central).	21
9	2		5	1	4		8	1	S 56° W	1·8	1·8			34	·362	4·7	0	0·40	−0·40	0·08	0·48	−0·40	0·88	2·55	− 1·67	0·08	Mainpuri.		

† Mean of 28 days.

* Total rainfall from 1st December 1901 to 31st March 1902.

Table

Abstract of Observations taken at 8 A.M. at 221

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas				—·013								95·6	—1·1	66·9	+0·4	81·3	—0·4	28·7					43·3
24	United Provinces (West Submontane).	Bareilly	568	29·190	—·005	29·729	29·302	2nd	29·026	22nd	·276	77·4	98·4	—0·9	68·9	0	83·7	—0·5	29·5	102·4	23rd & 30th.	62·2	2nd	40·2
		Dehra Dun	2,223	27·559	—·013	29·755	27·667	2nd	27·409	22nd	·258	71·3	90·1	—0·5	63·4	—0·9	76·8	—0·7	26·7	96·0	6th	55·5	9th	40·5
		Roorkee	899	28·859	—·008	29·738	28·985	2nd	28·694	22nd	·291	76·0	96·5	—1·7	65·0	—1·5	80·8	—1·6	31·5	101·7	6th	56·9	1st	44·8
22	United Provinces (West).	Meerut	738	29·016	—·015	29·726	29·119	2nd	28·844	22nd	·275	77·0	98·1	—0·4	67·1	—1·0	82·6	—0·7	31·0	103·2	6th, 24th & 30th.	61·3	11th	41·9
26	South-East Punjab.	Delhi	718	29·044	—·014	29·729	29·158	2nd	28·884	22nd	·274	80·2	97·8	—1·9	74·5	+1·0	86·2	—0·5	23·3	104·2	30th	63·1	8th	41·1
28	Central Punjab.	Lahore	702	29·053	—·013	29·732	29·182	2nd	28·865	23rd	·317	76·6	96·1	—2·1	67·2	+2·9	81·7	+0·4	28·9	103·4	24th & 30th.	59·0	15th	44·4
27	South Punjab	Sirsa	662	29·085	—·028	29·718	29·183	2nd & 3rd.	28·892	23rd	·291	78·3	99·7	—1·4	66·1	?	82·9	?	33·6	106·8	30th	61·1	1st	45·7
		Patiala	818	28·939		29·728	29·062	2nd	28·782	22nd	·280	79·0	95·5		67·2		81·4		28·3	102·2	30th	60·5	8th	41·7
29	Punjab (Submontane).	Ludhiana	812	28·940	—·015	29·729	29·072	2nd	28·782	23rd	·290	77·4	96·4	—1·0	68·7	+1·5	82·6	+0·3	27·7	102·5	7th	60·7	27th.	41·8
		Sialkot	830	28·931	—·008	29·740	29·064	10th	28·778	23rd	·286	77·7	94·8	—0·4	68·9	+2·6	81·9	+1·1	25·9	104·7	30th	59·2	1st	45·5
		Umballa	892	28·859	—·014	29·726	28·985	2nd	28·705	22nd	·280	76·5	96·1	—1·6	65·1	—1·1	80·6	—1·4	31·0	102·0	6th & 30th.	56·0?	2nd	46·0?
31	North Punjab	Rawalpindi	1,674	28·116	—·010	29·787	28·246	10th	27·988	24th	·258	71·6	87·8	—0·6	60·8	+0·7	74·2	+0·1	27·2	99·5	30th	53·1	14th	46·4
	VII.—North-West Frontier Province, Indus Valley and North-West Rajputana.				—·023								99·3	+1·3	71·7	+1·9	85·5	+1·6	27·5					44·6
31	North Punjab	Peshawar	1,110	28·722	—·011	29·832	28·848	10th	28·585	25th	·263	73·3	87·4	+0·5	60·7	—0·1	74·1	+0·2	26·7	97·5	29th	53·0	10th	44·5
32	West Punjab	Khushab	612	29·175	?	29·762	29·319	10th	29·005	23rd	·314	79·4	95·2	—0·1	63·5	+0·5	81·9	+0·2	26·7	103·8	30th	60·4	15th	43·4
		Montgomery	558	29·196	—·015	29·722	29·322	3rd	28·961	23rd	·361	82·2	98·4	—1·7?	69·7	+1·6?	84·1	—0·1?	28·7	108·0	30th	59·0	27th	49·0
		D. I. Khan	590	29·208	—·020	29·756	29·351	10th	29·041	25th	·310	76·4	95·8	+1·3	66·5	+0·4	81·2	+0·9	29·3	103·7	30th	58·1	27th	45·6
		Mooltan	420	29·344	—·028	29·737	29·493	10th	29·137	23rd	·356	78·9	99·7	+0·7	71·1	+2·5	85·4	+1·6	28·6	108·4	30th	63·0	27th	45·4
47	Sind	Jacobabad	186	29·572	—·032	29·720	29·689	7th	29·346	23rd	·343	82·5	105·1	+2·0	72·7	+3·0	88·9	+2·5	32·4	115·6	30th	63·1	27th	52·5
		Hyderabad	96	29·695	—·024	29·744	29·819	7th	29·531	24th	·288	84·5	105·1	+2·4	75·4	+3·1	90·3	+2·8	29·7	111·6	29th	69·0	2nd	42·6
		Kurrachee	30	29·800	—·020	29·781	29·905	7th	29·645	24th	·260	82·8	93·5	+2·9	78·5	+5·4	86·0	+4·2	15·0	106·4	22nd	71·2	2nd	35·2
51	West Rajputana	Bikaner	771	28·982	—·031	29·720	29·069	10th	28·829	23rd	·240	83·3	101·7	+0·4	76·3	+0·7	89·0	+0·6	25·4	109·0	30th	66·0	10th	43·0
		Pachpadra	380	29·413	?	29·749	29·508	7th	29·290	25th	·218	83·8	106·1	?	73·9	+4·3	90·0	?	32·2	112·5	30th	65·5	8th & 28th.	47·0
		Jodhpur	782	29·002		29·760	29·100	6th	28·876	25th	·224	85·4	104·2		75·9		90·1		28·3	110·2	30th	67·3	8th	42·9
	VIII.—East Rajputana, Central India and Gujarat.				—·018								100·6	+0·4	75·3	+2·9	88·0	+1·7	25·3					36·5
50	East Rajputana	Jaipur	1,431	28·376	—·019	29·756	28·488	2nd	28·236	22nd	·252	84·6	102·0	+0·3	73·3	+2·2	87·7	+1·3	28·7	107·2	24th & 30th.	67·1	9th	40·1
		Kotah	819	28·956		29·766	29·063	2nd	28·837	22nd	·226	88·6	104·5		79·1		91·8		25·4	108·6	24th & 25th.	72·1	2nd	36·5
		Sambhar	1,254	28·543	—·014	29·758	28·653	2nd	28·411	22nd	·242	81·5	101·7	+1·3	71·4	?	86·6	?	30·3	107·5	30th	62·6	28th & 29th.	44·9
		Ajmer	1,611	28·195	—·036	29·763	28·295	2nd	28·070	22nd	·225	81·7	100·0	+0·7	75·0	+3·6	87·5	+2·2	25·0	103·9	30th	65·7	28th	38·2
		Udaipur	1,925	27·912		29·765	28·002	6th	27·817	22nd	·185	85·8	99·9		73·6		86·8		26·3	104·5	30th	65·3	5th	39·2
		Deesa	466	29·353	—·035	29·773	29·442	6th	29·267	24th	·175	84·5	106·7	+2·5	75·7	+4·0	91·2	+3·3	31·0	111·1	30th	68·0	28th	43·1
46	Kathiawar and Cutch.	Bhuj	395	29·438	—·018	29·786	29·537	6th	29·326	24th	·211	83·8	102·7†	+1·7†	74·3†	+2·8†	88·5†	+2·3	28·4	108·3	29th	70·9	6th	37·4
		Jamnagar	61	29·794		29·801	29·883	6th	29·692	24th	·191	82·5	98·3		74·4		86·3		23·9	104·7	28th	69·2	23rd	35·5
		Rajkot	429	29·426	—·020	29·809	29·507	6th	29·340	24th	·167	81·5	103·7	+0·9	73·2	+3·8	88·5	+2·4	30·5	107·4	26th & 29th.	67·8	23rd	39·6
		Veraval	8	29·856	—·002	29·816	29·926	2nd	29·793	22nd	·133	80·6	85·8*	?	76·0‡	+3·6‡	81·0‡	?	9·8	99·1	28th	72·8	1st	26·3
		Dwarka	37	29·832		29·815	29·919	6th	29·736	24th	·183	85·5	86·7		78·6		82·7		8·1	89·9	26th & 28th	75·2	3rd	14·7
		Bhavnagar Para.	55	29·813	—·027	29·814	29·918	2nd	29·741	22nd	·177	84·3	104·4	?	76·4	?	90·5	?	28·0	108·2	13th & 21st.	72·8	6th	35·4
49	Central India	Nowgong	757	29·023	?	29.733	29·142	2nd	28·906	22nd	·236	83·9	102·3	—1·1	73·9	+2·5	88·2	+0·7	28·4	108·0	26th	67·0	2nd	41·0
		Indore	1,823	28·029	—·003	29·778	28·149	2nd	27·937	22nd	·212	85·1	100·9	+0·3	72·7	+3·0	86·8	+1·7	28·2	104·3	20th & 30th.	64·5	6th & 30th.	39·7
		Neemuch	1,630	28·2·4	—·011	29·776	28·316	6th	28·105	22nd	·211	83·8	100·8	—0·1	73·4	+2·1	87·1	+1·0	27·4	105·5	30th	65·5?	10th	40·0

* Mean of 28 days. † Mean of 29 days. ‡ Mean of 23 days.

I—*continued.*

Stations in India, Burma, etc., in April, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec. 1901 to 30th April 1902.	Normal rainfall for period, 1st Dec. to 30th April.	Variation from normal of period, 1st Dec. to 30th April.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				0·73	0·52	+0·26					VI.—Upper Sub-Himalayas.		
20		4	4					2	N 51° E	2·2	2·1	4·5	− 53	42	·393	2·1	1	0·45	+ 0·55	0·14	0·17	−0·03	0·85	3·05	− 2·20	0·12	Bareilly .	United Provinces (West Sub-montane).	24
11		3	2			2	10	2	N 77° W	2·6		2·6	0	43	·322	3·5	4	1·50	+ 2·50	1·62	0·59	+ 1·03	2·77	6·92	− 4·15	0·86	Dehra Dun,		
19		1	2	4		2	1	1	S 40° E	3·7		3·2	+ 16	40	·354	1·9	3	1·10	+ 1·90	1·81	0·39	+1·42	2·36	4·69	− 2·33	1·08	Roorkee,		
14			4	1			6	5	N 59° W	1·9	1·9	2·4	− 21	38	·351	2·7	1	0·90	+ 0·10	0·31	0·19	+0·12	0·49	3·55	− 3·06	0·18	Meerut, .	United Provinces (West).	22
6	2	1	3	3		1	3	11	N 37° W	4·7	4·3	3·9	+ 10	34	·344	1·4	1	0·90	+ 0·10	0·23	0·21	+0·02	0·43	3·18	− 2·75	0·15	Delhi . .	South-East Punjab.	26
11	4	2	7	3	1			2	N 66° E	3·4		3·3	+ 3	43	·398	3·8	1	1·00	0	0·25	0·42	−0·17	1·05	3·67	− 2·62	0·21	Lahore .	Central Punjab	28
	1	13		6	2	5	1	2	N 72° E	6·2	5·6	4·0	+ 40	44	·423	0	1	0·60	+ 0·40	0·16	0·26	−0·10	0·38	2·06	− 1·68	0·10	Sirsa .	South Punjab .	27
																				0·14			0·79			0·06	Patiala,		
3	8	3	4	5	1	1	1	4	N 32° E	5·9	5·9			46	·453	3·1	0												
11	2	4	1	4		1	6	1	N 22° W	3·7	3·3	2·1	+ 57	40	·369	2·5	2	1·00	+ 1·00	1·18	0·71	+0·47	1·84	5·42	− 3·58	1·00	Ludhiana .	Punjab (Submontane).	29
6	7	9	2	1			1	4	N 18° E	3·9		2·3	+ 70	48	·444	2·3	2	1·90	+0·10	0·48	0·80	−0·32	1·40	6·77	− 5·37	0·26	Sialkot.		
19			3	4				4	E	8·4				45	·393	2·4	3	0·90	+ 2·10	0·71	0·31	+0·40	1·51	5·53	− 4·02	0·43	Umballa,		
6	5	2	3	3	1	1	3	6	N 8° W	4·0	3·7	2·8	+ 32	47	·357	4·1	5	3·20	+ 1·80	1·77	1·70	+0·07	2·78	9·31	− 6·53	0·54	Rawalpindi.	North Punjab .	31
																				0·09	0·36	−0·27					VII.—North-West Frontier Province, Indus Valley and North-West Rajputana.		
18		1	1	1		2	4	3	N 82° W	2·5	2·7	4·2	− 36	52	·420	4·3	3	3·40	− 0·40	0·65	1·75	−1·10	1·55	6·94	− 5·39	0·30	Peshawar .	North Punjab .	31
5	4	11	5		1	1	1	2	N 40° E	9·0	10·4			35	·353	2·2	1	1·50	− 0·50	0·22	0·62	−0·40	0·54	3·80	− 3·26	0·12	Khushab .	West Punjab .	32
2	5	5	6	7	1	1		3	N 72° E	8·0	6·9			26	·281	2·3	0	0·70	− 0·70	0	0·13	-0·13	0·33	2·41	− 2·08	0	Montgomery,		
14	4	8						4	N 14° E	2·3	2·4	2·4	0	55	·507	3·2	0	1·90	− 1·90	0·94	0·70	−0·66	0·16	3·03	− 2·87	0·04	D. I. Khan.		
12	5	5	1	3	1			3	N 32° E	1·5	1·8	2·5	− 28	42	·410	2·4	1	0·70	+ 0·30	0·12	0·10	+0·02	0·45	1·56	− 1·11	0·12	Mooltan,		
11	3	3	4	5		1		3	N 67° E	3·6	3·7	3·9	− 5	44	·492	2·8	0	0·40	− 0·40	0	0·16	−0·16	0·08	1·00	− 0·92	0	Jacobabad .	Sind . .	47
2	3	1			1	20	3		S 56° W	7·9	8·2	10·2	− 20	43	·494	1·7	0	0·20	− 0·20	0	0·04	−0·04	0·07	0 71	− 0·64	0	Hyderabad,		
3						8	15	4	S 83° W	10·6	13·3	14·0	− 5	77	·866	2·1	0	0·20	− 0·20	0	0·25	−0·25	0·01	1·54	− 1·53	0	Kurrachee.		
1	1	5	2	3	3	4	7	4	S 83° W	7·9		4·7	+ 68	38	·438	2·3	0	0·30	− 0·30	0	0·11	−0·11	0	1·12	− 1·12	0	Bikaner .	West Rajputana	51
	2	1	1		8	9	7	2	S 52° W	8·0	7·1	4·5	+ 58	40	·464	0	0	0·20	− 0·20	0	0·04	−0·04	0·07	0·73	− 0·66	0	Pachpadra,		
7	1	7	2	1	3	7	2		S 15° E	5·4	4·9			26	·305	2·3	0	0·20	− 0·20	0	0·05	−0·05	0·05	0·55	− 0·50	0	Jodhpur.		
																				0·04	0·06	−0·02					VIII.—East Rajputana, Central India and Gujarat.		
2	3	8	3		1	3	5	5	N 13° W	3·9		5·7	− 32	28	·321	2·9	0	0·40	− 0·40	0·02	0·07	− 0·05	0·02	1·37	− 1·35	0·02	Jaipur .	East Rajputana.	50
9	4			3	1	3	5	5	N 74° W	4·0	4·7			25	·333	1·0	0	·30	− 0·30	0·01	0·02	−0·01	0·47	0·78	−0·31	0·01	Kotah.		
16	2	1	3			2	4	2	N 49° W	5·7		7·0	− 19	26	·271	2·7	0	0·30	− 0·30	0·09	0·09	0	0·11	1·29	− 1·18	0·06	Sambhar,		
9		7		3	1	7	1	2	S 11° W	6·0		5·0	+ 20	31	·333	3·6	0	0·50	− 0·50	0·13	0·11	+0·02	0·17	1·22	− 1·05	0·05	Ajmer,		
19	2					1	5	3	N 66° W	3·4	3·4			50	·623	1·3	1	0·30	+ 0·70	0·12			0·16			0·12	Udaipur.		
	2	1		2	6	8	9	2	S 57° W	9·0		9·4	− 4	49	·576	1·2	0	0	0	0	0·01	−0·01	0·07	0·34	− 0·27	0	Deesa.		
	1					6	12	11	N 80° W	14·8		10·9	+ 36	66	·761	1·2	0	0	0	0	0·12	−0·12	0·11	0·41	− 0·30	0	Bhuj . .	Kathiawar and Cutch.	46
																				0			0·16			0	Jamnagar.		
1					2	13	12	2	S 52° W	15·8	18·8			78	·864	2·1	0												
	4					7	12	7	N 80° W	13·4	13·3	11·1	+ 20	70	·743	1·6	0	0	0	0	0·01	−0·01	0·01	0·18	− 0·17	0	Rajkot.		
1	6	2				3	7	11	N 50° W	12·3		7·2	+ 71	86	·890	2·0	0	0	0	0	0	0	0	0·10	− 0·10	0	Veraval,		
	1					8	14	7	N 52° W	15·2				82	·911	2·7	0			0			0·01			0	Dwarka.		
	1		1	1	2	6	10	9	N 89° W	11·6	10·9			53	·616	1·5	0	0	0	0·01	0·01	0	0·01	0·30	− 0·29	0·01	Bhavnagar Pare,		
7	1		5	3	2	5	5	2	S 28° W	2·3	2·3	2·8	− 18	32	·367	1·8	0	0·10	− 0·10	0	0·05	−0·05	1·23	2·01	− 0·78	0	Nowgong .	Central India .	49
4	1	1			1	4	15	4	N 88° W	7·2		4·4	+ 64	42	·519	1·4	0	0·20	− 0·20	0·11	0·13	−0·02	0·37	0·68	− 0·31	0·06	Indore,		
1	3	2	3	1		6	11	3	N 83° W	8·6	7·7	10·3	− 25	41	·482	1·2	1	0·10	+ 0·90	0·26	0·09	+0·17	0·80	0·79	+ 0·01	0·26	Neemuch.		

Table

Abstract of Observations taken at 8 A.M. at 221

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure, reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
45	Gujarat	Surat	39	29·840	−·011	29·821	29·936	2nd	29·772	22nd	·164	85·5	100·9	+0·8	76·1	+3·3	88·5	+2·1	24·8	107·1	21st & 28th	71·0	3rd	36·1
		Ahmedabad*	163	29·679	−·018	29·789	29·765	6th	29·604	22nd	·161	85·5	105·9	+0·8	78·2	+3·0	92·1	+1·9	27·7	110·3	30th	75·1	4 days	35·2
22	United Provinces (West)	Agra	555	29·222	−·020	29·737	29·350	2nd	29·086	22nd	·264	82·7	101·0	−1·6	75·3	+1·6	88·2	0	25·7	105·5	21st	69·9	8th & 15th	35·6
21	United Provinces (Central).	Jhansi	858	28·941	−·017	29·750	29·070	2nd	28·816	22nd	·254	85·6	103·7	−1·1	80·0	+3·3	91·9	+1·1	23·7	108·8	21st	73·6	2nd	35·2
	IX.—Deccan				−·008								103·2	+0·4	75·0	+1·7	89·1	+1·1	28·2					41·9
38	Bombay (Deccan)	Belgaum	2,539	27·366	+·001	29·820	27·447	2nd	27·303	22nd	·144	76·9	96·9	+0·9	67·1	?	82·0	?	29·8	102·3	27th	62·9	12th	39·4
		Sholapur	1,590	28·278	−·007	29·799	28·384	2nd	28·205	18th	·179	84·8	104·9	+0·1	76·4	+6·9	90·7	+0·5	28·5	110·2	28th	68·6	2nd	41·6
		Poona	1,840	28·050	−·012	29·829	28·141	2nd	27·974	18th	·167	79·5	103·0	+1·4	68·5	?	85·8	?	34·5	107·1	15th & 27th	64·9	13th	42·2
		Bijapur	1,946	27·944	+·008	29·809	28·036	2nd	27·886	18th	·150	83·2	102·5	?	75·1	+0·3	88·8	?	27·4	106·5	27th & 30th	68·3	1st	38·2
40	Khandesh	Malegaon	1,430	28·431	−·015	29·797	28·543	2nd	28·361	22nd	·182	86·3	105·3	+2·1	71·9	+0·1	88·6	+1·1	33·4	109·8	26th & 27th.	63·1	24th	46·7
		Ahmednagar	2,152	27·749	?	29·812	27·833	2nd	27·684	18th	·149	83·7	101·6	+2·7	70·6	+1·0	86·1	+1·9	31·0	106·4	27th	65·4	4 days	41·0
41	Berar	Akola	930	28·897	−·017	29·764	29·034	2nd	28·817	22nd	·217	88·0	107·0	+1·0	78·2	+3·4	92·6	+2·2	28·8	110·6	26th & 27th	64·8	5th	45·8
		Amraoti	1,215	28·618	−·004	29·771	28·752	2nd	28·524	22nd	·228	87·3	105·4	+0·4	77·1	+0·8	91·3	+0·6	28·3	110·4	26th	69·5	5th	40·9
42	Central Provinces (West).	Khandwa	1,044	28·785	−·015	29·773	28·909	2nd	28·703	22nd	·206	87·4	105·5	+0·7	78·5	+3·2	92·0	+2·0	27·0	109·2	30th	67·1	5th	42·1
		Hoshangabad	1,006	28·812	?	29·768	28·934	6th	28·713	22nd	·221	85·7	105·2	+0·4	75·8	+2·0	90·5	+1·2	29·4	109·9	26th	67·2	6th	42·7
		Nagpur	1,025	28·791	−·011	29·760	28·963	2nd	28·692	22nd	·271	87·1	106·3	+0·8	77·6	+1·4	92·0	+1·1	28·7	110·7	4 days	68·6	6th	42·1
43	Central Provinces (Central)	Chanda	634	29·208	?	29·778	29·362	2nd	29·119	22nd	·243	88·5	106·9	+0·4	79·1	+2·7	93·0	+1·6	27·8	112·2	28th & 29th.	71·5	3rd	40·7
		Seoni	2,033	27·805	−·018	29·750	27·942	2nd	27·705	22nd	·237	85·0	100·9	−0·2	73·0	+1·2	87·0	+0·5	27·9	106·9	28th	64·5	7th	42·4
		Jubbulpore	1,327	28·469	?	29·743	28·596	6th	28·374	21st	·222	83·9	102·1	+0·1	72·3	+1·7	87·3	+0·9	29·8	107·0	21st & 26th.	66·2	1st & 30th	40·8
		Saugor	1,807	28·019	−·012	29·753	28·131	6th	27·922	22nd	·209	85·7	100·8	−0·7	76·1	+3·3	88·4	+1·3	24·7	105·9	21st	68·6	6th	37·3
49	Central India	Sutna	1,040	28·746	−·015	29·739	28·875	2nd	28·617	21st	·258	85·4	102·0	+0·3	75·3	+3·7	88·7	+2·0	26·7	106·6	21st & 24th.	69·1	4th	37·5
44	Central Provinces (East).	Raipur	976	28·815	−·007	29·755	28·981	2nd	28·739	23rd	·242	86·9	103·1	−1·2	77·4	+0·5	90·3	−0·4	25·7	109·5	28th	67·9	6th	41·6
		Sambalpur	486	29·335	−·005	29·768	29·450	6th	29·226	27th	·224	85·3	102·2	−2·1	77·4	+1·8	89·9	−0·2	24·2	110·1	27th	69·2	1st	40·9
39	Hyderabad (North).	Aurangabad	1,905	27·981		29·796	28·072	2nd	27·912	18th	·160	86·8	101·8		73·0		87·4		28·8	107·1	27th	63·2	5th	43·9
		Indur										88·7	104·6		68·0		86·3		36·6	108·9	29th	63·2	5th	45·7
		Bidar	2,165?	27·722		29·783	27·798	6th	27·653	24th	·145	86·8	101·8		76·9		89·4		24·9	107·2	29th	64·4	2nd	42·8
53	Hyderabad (South).	Gulbarga	1,503	28·360	−·010	29·791	28·483	2nd	28·299	22nd & 27th.	·184	86·2	104·3	+1·0	77·1	+1·0	90·7	+1·0	27·2	110·4	30th	55·8	1st	54·6
		Raichur	1,326	28·536	+·006	29·800	28·638	2nd	28·477	27th	·161	84·9	102·5	+0·4	78·6	?	90·6	?	23·9	108·0	10th & 22nd.	70·1	5th & 6th.	37·9
		Hyderabad (Dn.)	1,690	28·182	+·003	29·800	28·292	2nd	28·095	22nd	·197	84·4	101·3	?	76·5	+1·2	88·9	?	24·8	106·4	30th	68·7	5th	37·7
		Secunderabad	1,787	28·088	?	29·806	28·199	2nd	28·003	22nd	·196	82·1	103·1	+1·1	75·9	+0·6	89·5	+0·9	27·2	108·3	30th	68·0	5th	40·8
		Hanumkonda	671	28·987		29·802	29·123	6th	28·881	22nd	·239	82·6	102·1		77·3		89·7		24·8	108·2	28th	66·3	5th	41·9
	X.—West Coast				+·005								90·7	+0·8	79·4	+1·2	85·1	+1·0	11·3					17·5
37	Konkan	Bombay	37	29·866	−·001	29·843	29·943	2nd	29·798	18th	·145	82·7	90·1	+1·6	79·0	+1·3	84·6	+1·5	11·1	92·0	20th	77·5	4 days	14·5
		Ratnagiri	110	29·798	+·017	29·846	29·871	2nd	29·732	26th	·139	83·4	90·6	+0·5	78·5	+1·1	84·6	+0·8	12·1	92·4	18th & 22nd.	74·9	5th	17·5
		Mormugao	60	29·853	+·013	29·847	29·911	2nd	29·791	22nd	·120	85·1	90·2	+0·1	81·2	+1·2	85·7	+0·7	9·0	92·0	8th & 22nd.	77·4	6th	14·6
		Goa	199			Barometer out		of order.				83·4	87·1	?	80·9	+2·0	84·1	?	6·2	88·0	6 days	77·0	6th	11·0
		Karwar	44	29·866	+·006	29·842	29·933	3rd	29·812	22nd	·121	82·1	90·3	+0·3	79·0	+1·1	84·7	+0·7	11·3	91·3	6 days	71·5	6th	19·8
33	Malabar	Cochin	10	29·899	−·002	29·837	29·981	3rd	29·842	18th	·139	84·1	94·6	?	78·9	+0·5	86·8	?	15·7	97·5	17th	75·2	3rd	22·3
		Calicut	27	29·876	−·005	29·832	29·959	3rd	29·810	22nd	·149	84·1	92·6	+1·3	78·8	+0·9	85·7	+1·1	13·8	94·9	18th	73·0	6th	21·9
		Mangalore	65	29·842	−·003	29·839	29·919	3rd	29·772	22nd	·147	84·9	91·8	+0·7	80·2	+1·5	86·0	+1·1	11·6	94·2	28th	73·4	5th	20·8
		Trivandrum	198	29·709	+·014	29·838	29·783	1st	29·643	22nd & 23rd.	·140	82·7	89·1	+1·6	78·6	?	83·9	?	10·5	90·5	17th & 24th.	75·0	3rd	15·5

* Observation of 29 days.

I—continued.

Stations in India, Burma, etc., in April, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec. 1901 to 30th April 1902.	Normal rainfall for period, 1st Dec. to 30th April.	Variation from normal of period, 1st Dec. to 30th April.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
5	5				11	6	1	2	S 37° W	7·0	6·6	8·0	−18	63	·780	0·7	0	0	0	0	0	0	0·50	0·14	+0·36	0	Surat	Gujarat	45
	2	1	1	1		5	2	16	N 54° W	3·4	5·6			58	·699	1·1	0	0·10	−0·10	0	0	0	0·02	0·30	−0·28	0	Ahmedabad		
1		6		2		19		2	S 45° W	3·4	3·9	4·7	−17	42	·459	2·3	0	0·40	−0·40	0·04	0·13	−0·09	0·26	1·50	−1·24	0·03	Agra	United Provinces (West).	22
1	2	1		3	3	10	3	7	S 70° W	4·8	5·3	4·2	+26	47	·570	1·3	0	0·50	−0·50	0·01	0·12	−0·11	1·93	1·65	+0·28	0·01	Jhansi	United Provinces (Central).	21
																				0·33	0·51	−0·19					IX.—Deccan.		
1	3	2	1	3	3	6	8	3	S 73° W	13·8		13·1	+ 5	58	·531	1·4	1	3·80	−2·80	0·32	1·90	−1·58	0·53	2·52	−1·99	0·30	Belgaum	Bombay Deccan.	38
	5	3	2	1	2	2		15	N 28° W	8·8	10·6	8·2	+29	37	·438	1·5	1	1·10	−0·10	0·40	0·43	−0·03	0·40	1·22	−0·82	0·33	Sholapur.		
2				3		10	8	7	S 76° W	11·8	13·3	9·9	+34	41	·415	0·3	0	1·40	−1·40	0	0·68	−0·68	0·10	1·01	−0·91	0	Poona.		
	4	1	1		2	4	6	12	N 62° W					57	·641	1·2	1	2·20	−1·20	0·28	0·80	−0·52	0·42	1·39	−0·97	0·26	Bijapur.		
	2				1	5	12	10	N 78° W	9·3	10·7	7·7	+39	29	·365	3·1	0	0·30	−0·30	0	0·10	−0·10	0·74	0·54	+0·20	0	Malegaon	Khandesh	40
1	10	1			3	2		13	N 33° W	9·0	11·0			44	·507	0·6	0	0·60	−0·60	0	0·33	−0·33	0·67	1·56	−0·89	0	Ahmednagar.		
3			1	1	1	1	8	15	N 65° W	6·4	6·3	5·4	+17	30	·392	1·0	0	0·50	−0·50	0·07	0·20	−0·13	0·23	1·88	−1·65	0·06	Akola	Berar	41
		3	1	3	4	9	7	3	S 51° W	8·1	7·2	4·4	+64	34	·433	1·1	0	0·80	−0·80	0·14	0·23	−0·09	0·14	1·68	−1·54	0·08	Amraoti.		
					1	2	10	17	N 68° W	8·6		5·6	+54	30	·382	0·8	1	0·30	+0·70	0·15	0·13	+0·02	0·62	0·99	−0·37	0·15	Khandwa	Central Provinces (West).	42
		8		2		17		3	S 51° W	3·4	3·5	2·9	+21	30	·370	0·3	0	0·30	−0·30	0·14	0·15	−0·01	0·54	1·39	−0·85	0·09	Hoshangabad		
	3	1		1	2	7	6	10	N 79° W	7·5		6·7	+12	31	·378	1·6	0	1·10	−1·10	0·04	0·48	−0·44	0·04	2·25	−2·21	0·03	Nagpur.		
2		1	3	14	7	2	1		S 32° E	3·4		3·8	−11	46	·635	1·3	0	1·80	−1·80	0·10	0·59	−0·49	0·10	2·91	−2·81	0·08	Chanda	Central Provinces (Central).	43
	4	2	3	6	9	5		1	S 23° E	5·5		3·8	+45	32	·377	1·4	2	1·30	+0·70	0·24	0·39	−0·15	0·61	2·91	−2·30	0·12	Seoni.		
	1	1	3	8	8	4	4	1	S 7° E	3·3	2·9	3·5	−17	33	·376	1·2	1	0·60	+0·40	0·22	0·15	+0·07	0·68	2·19	−1·51	0·22	Jubbulpore.		
	1	4	5	5	4	4	7		S 13° E	6·0	6·8	3·7	+84	39	·484	2·0	0	0·30	−0·30	0·06	0·09	−0·03	0·74	2·13	−1·39	0·05	Saugor.		
3	1	3	2	1	1	3	10	6	N 73° W	4·7	5·0	6·8	−26	24	·290	3·9	0	0·20	−0·20	0·02	0·11	−0·09	1·47	2·54	−1·07	0·02	Sutna	Central India.	49
1		2	1	3	2	18	2	1	S 36° W	7·6	7·0	5·9	+19	39	·497	1·6	2	1·40	+0·60	0·75	0·53	+0·22	0·75	1·98	−1·23	0·54	Raipur	Central Provinces (East).	44
	1	1	2	5	7	10	3	1	S 16° W	4·8	4·7	2·6	+81	54	·659	1·5	2	1·50	+0·50	1·34	0·60	+0·74	1·39	2·70	−1·31	0·77	Sambalpur.		
3	4		1	2	1	3	8	8	N 69° W	11·0	11·0			27	·350	0·5	1	0·60	+0·40	0·32	0·22	+0·10	0·51	1·20	−0·69	0·32	Aurangabad.	Hyderabad (North).	39
2	1	3				3	4	7	N 56° W	5·6	4·7			45	·611	1·7	1	1·40	−0·40	0·19	0·49	−0·30	0·19	1·48	−1·29	0·14	Indur.		
	3					21	2	4	S 66° W	10·2	8·6			44	·545	0	1	2·60	−1·60	0·51	0·98	−0·47	0·51	2·20	−1·69	0·46	Bidar.		
4	5	7	3	2		4	2	3	N 14° E	8·7	8·3			53	·648	1·8	2	2·20	−0·20	0·93	1·05	−0·12	0·93	1·93	−1·00	0·48	Gulbarga	Hyderabad (South).	53
1	2	2	4			17	4		S 52° W	9·4	8·9			53	·630	0·7	4	1·20	+2·80	0·95	0·66	+0·29	0·95	1·34	−0·39	0·56	Raichur.		
25			2				3		W	4·6	4·5			58	·688	1·8	3			0·40	0·67	−0·27	0·40	1·63	−1·23	0·14	Hyderabad (Dn.).		
	2	2	6	13	1	5		1	S 52° E	6·1		5·3	+15	62	·687	1·7	1	1·60	−0·60	0·32	0·67	−0·35	0·34	1·63	−1·29	0·13	Secunderabad		
1	2			21	3	1	2		S 36° E	8·9	7·6			67	·765	2·9	2	1·30	+0·70	0·75			0·76			0·34	Hanumkonda		
																				0·53	2·00	−1·47					X.—West Coast.		
1	8	5	3	1		3	2	7	N 8° W	8·6		11·3	−24	76	·861	2·8	0	0·10	−0·10	0	0·07	−0·07	0	0·27	−0·27	0	Bombay	Konkan	37
6	5	2		2	1		1	13	N 29° W	6·3	6·2	11·1	−44	70	·802	1·1	0	0·10	−0·10	0	0·08	−0·08	0	0·32	−0·32	0	Ratnagiri.		
2	13	2	3	1	1			8	N 2° W	9·3				73	·880	2·2	0			0·05	1·04	−0·97	0·05	1·09	−1·04	0·05	Mormugao.		
	8	8	1	1	2		2	8	N 1° W					75	·858	3·3	0			0	0·32	−0·32	0·03	0·63	−0·60	0	Goa.		
5	8	10	6	1					N 41° E	5·6				78	·845	1·7	0	0·90	−0·90	0	0·55	−0·55	0	0·73	−0·73	0	Karwar.		
1	16	4					2	7	N 9° W	6·1				77	·902	3·7	6	7·00	−1·00	1·99	5·20	−3·21	5·17	10·42	−5·25	0·42	Cochin	Malabar	33
2	10	6	8	1	1			2	N 40° E	9·1	11·5			76	·886	5·0	3	5·10	−2·10	1·05	4·38	−3·33	6·79	6·27	+0·52	0·59	Calicut.		
12	2	1	5	5				5	N 64° E	3·5		3·7	− 5	71	·858	4·3	1	2·30	−1·30	0·21	1·65	−1·44	1·91	2·25	−0·34	0·10	Mangalore.		
10	6	5	3	1				5	N 17° E	5·2				76	·856	2·7	3	7·10	−4·10	1·47	4·74	−3·27	6·17	10·03	−3·86	1·03	Trivandrum.		

Table

Abstract of Observations taken at 8 A.M. at 221

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	XI.—South India				+ ·067								96·9	+0·4	76·9	+1·2	86·9	+0·8	20·0					30·3
57	Madras (South)	Pamban	37	29·870	+·012	29·834	29·947	3rd	29·779	23rd	·168	84·9	92·5	+1·6	80·0	+1·0	86·3	+1·3	12·5	94·8	26th	76·2	5th	18·6
		Tinnevelly	168	29·733	+·012	29·830	29·811	2nd	29·635	22nd	·176	85·1	98·5	+0·5	78·3	−0·3	88·4	+0·1	20·2	104·5	24th	71·9	3rd	32·6
		Madura	447	29·454	+·010	29·835	29·541	3rd	29·370	22nd	·171	84·7	98·6	−0·7	77·6	+1·2	83·1	+0·3	21·0	101·5	29th	71·5	3rd	30·0
		Periyakulam	945	28·962			29·032	1st, 2nd & 3rd.	28·886	22nd	·146	82·6	98·1		74·0		85·2		24·1	102·3	22nd	68·5	3rd	33·8
34	Madras, (South Central).	Salem	940	28·977	?	29·850	29·071	2nd	28·904	22nd	·167	84·3	100·5	−0·2	76·8	+1·0	88·7	+0·4	23·7	103·2	22nd & 29th.	71·5	1st	31·7
		Coimbatore	1,348	28·562	+·005	29·849	28·638	2nd	28·489	22nd	·149	81·4	97·6	+0·2	74·8	+1·4	86·2	+0·8	22·8	100·9	17th	70·8	4th & 23rd.	30·1
35	Coorg	Mercara	3,781	26·252	+·018		26·308	2nd & 3rd.	26·196	23rd	·112	68·8	82·9	−1·0	64·1	?	73·5	?	18·8	88·0	3rd	58·1	6th	29·9
36	Mysore	Chitaldroog	2,405	27·515	+·003	29·819	27·609	2nd	27·459	18th	·150	80·2	97·2	+1·4	73·3	+1·5	85·3	+1·5	23·9	101·7	28th	68·4	15th	33·3
		Bangalore	3,021	26·945	+·003	29·842	27·021	2nd	26·882	22nd	·139	76·3	92·7	−0·5	69·6	+0·4	81·2	−0·1	23·1	96·8	28th	59·9	12th	36·9
		Hassan	3,091	26·879	+·005	29·849	26·945	2nd	26·828	22nd	·117	77·1	90·7	−0·4	67·8	+1·4	79·3	+0·5	22·9	94·9	26th	60·3	6th	34·6
		Mysore	2,518	27·432	+·008	29·858	27·502	2nd	27·364	23rd	·138	76·9	94·2	+0·2	70·2	?	82·2	?	24·0	97·1	21st	65·0	30th	32·1
56	Madras, East Coast, South.	Negapatam	31	29·868	0	29·828	29·942	3rd	29·785	22nd	·157	85·7	91·2	−1·3	81·2	+2·2	86·2	+0·5	10·0	99·2	29th	77·5	4th	21·7
		Cuddalore	12	29·852	+·012	29·833	29·976	2nd	29·803	22nd	·173	85·0	92·9	+0·1	78·2	+1·4	85·6	+0·8	14·7	96·7	22nd	72·7	27th	24·0
		Trichinopoly	255	29·654	+·010	29·840	29·732	2nd	29·570	22nd	·162	85·2	101·5	+0·4	79·1	+1·6	90·3	+1·0	22·4	105·2	30th	73·4	6th	31·8
		Madras	22	29·863	+·003	29·833	29·970	2nd	29·803	22nd	·167	85·6	93·3	+0·2	78·4	+1·3	85·8	+0·8	14·9	98·0	23rd	74·0	4th	24·0
		Vellore	707	29·184		29·829	29·273	2nd	29·113	30th	·160	83·1	99·9		75·8		87·9		24·1	106·3	22nd	70·5	4th	35·8
55	Madras, East Coast, Central.	Nellore	71	29·813	+·017	29·817	29·907	2nd	29·743	27th	·164	85·7	100·9	0	78·7	+1·3	89·8	+0·7	22·2	105·3	24th	74·1	3rd	31·2
		Masulipatam	15	29·882	+·015	29·832	29·999	2nd	29·771	22nd	·228	85·4	95·5	+0·6	76·3	+0·8	86·9	+0·7	17·2	100·2	5th	68·1?	22nd	32·1
54	Madras, Central	Cuddapah	433	29·437	+·002	29·803	29·534	2nd	29·379	23rd	·155	89·2	106·6	+1·4	82·6	+1·8	94·7	+1·6	24·0	110·8	25th	74·2	4th	36·6
		Kurnool	923	28·935	?	29·792	29·056	2nd	28·871	27th	·185	86·2	105·0	+1·4	79·6	+1·6	92·3	+1·5	25·4	110·3	26th	69·9	7th	40·4
		Bellary	1,475	28·410	+·011	29·814	28·521	2nd	28·317	18th	·174	85·6	104·9	+1·5	78·8	+1·7	91·9	+1·6	26·1	108·5	26th & 28th.	71·2	7th	37·3
52	Madras, East Coast, North.	Cocanada	26	29·867	+·004	29·828	29·976	2nd	29·719	22nd	·257	84·8	97·9	?	79·5	+1·2	88·7	?	18·4	102·1	23rd	74·5	22nd	27·6
		Waltair (Vizag.)	226	29·652	+·005	29·819	29·745	6th	29·512	22nd	·233	84·0	90·2	?	79·0	+0·2	84·6	?	11·2	93·4	23rd	75·4	6th	18·0
		Gopalpur	21	29·821	+·004	29·782	29·930	6th	29·726	22nd	·204	82·3	88·2	+0·5	77·0	−0·5	82·6	0	11·2	91·3	22nd	69·1	11th	22·2
	XII.—Hill Stations.																							
48	Baluchistan	Pishin											77·2		43·9		60·6		33·3	85·4	30th	32·0	26th	53·4
		Quetta	5,502	24·629	−·003		24·779	6th	24·451	24th	·328	60·9	75·4	+1·2	46·3*	+0·1*	60·6*	+0·7	29·1	85·2	30th	35·3	26th	49·9
		Kalat										58·2	75·6	−0·5	34·4	−3·0	55·0	−1·8	41·2	83·9	30th	19·4	26th	64·5
		Chaman	4,311	25·658	−·038		25·760	2nd	25·460	24th	·300	70·0	82·7	+1·1	56·2	−1·8	69·5	−0·4	26·5	91·7	30th	42·6	26th	49·1
30	Punjab and North-West Frontier Province.	Leh	11,503	19·697	−·033		19·832	2nd & 5th.	19·521	25th	·311	38·0	52·6	−4·5	30·0	−0·9	41·3	−2·7	22·6	61·1	20th	24·5	26th	36·6
		Srinagar	5,204	24·895	−·014		25·038	3rd	24·726	25th	·312	50·4	66·7	−1·5	44·2	−1·2	55·5	−1·4	22·5	75·8	15th	32·6	24th	43·2
		Sonamarg		21·835			21·965	3rd	21·647	25th	·318	36·1	50·8		29·8		40·3		21·0	58·7	19th	19·1	10th	39·6
		Skardu		22·856			23·025	3rd	22·608	25th	·417	49·6	62·0		43·8		52·9		18·2	71·4	19th	37·1	26th	34·3
		Dras		20·788			20·930	29th	20·548	25th	·382	33·1	46·7		24·4		35·6		22·3	59·0	20th	9·6	21st	49·4
		Gilgit	4,890	25·129			25·299	2nd	24·889	25th	·410	56·5	70·4	−2·3	51·7	−2·3	61·1	−2·3	18·7	81·7	19th	43·3	26th	38·4
		Chitral		24·345†			24·580	18th	24·150	23rd	·430	56·0	71·9		48·0		60·0		23·9	80·5	18th	38·4	25th	42·1
		Kilia Drosh										55·9	72·2		51·1		61·7		21·1	83·2	18th	43·3	25th	39·9
		Para Chinar	6,000	24·421			24·546	2nd	24·248	25th	·298	57·2	69·0		48·5		58·8		20·5	78·7	29th	42·0	26th	36·7
		Cherat		25·674	+·001		25·802	3rd	25·512	25th	·290	62·2	74·1	−1·4	55·8	−2·1	65·0	−1·8	18·3	84·8	30th	48·0	12th	36·8

* Mean of 23 days.

† Aneroid corrected.

I—*continued.*

Stations in India, Burma, etc., in April, 1902—continued.

Wind Direction, Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity: Mean velocity in miles per hour by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M.: Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall: Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec. 1901 to 30th April 1902.	Normal rainfall for period, 1st Dec. to 30th April.	Variation from normal of period, 1st Dec. to 30th April.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				0·88	1·42	−0·54					XI.—South India.		
1		3	6	15	2	2		1	S 57° E	5·3	5·6			84	1·009	2·7	3	3·30	−0·30	0·80	2·40	−1·60	15·43	15·49	−0·06	0·35	Pamban	Madras (South).	57
	8	1	1		1	3	7	9	N 49° W	4·5	4·3			72	·880	2·9	1	3·70	−2·70	0·21	3·28	−3·07	11·45	10·56	+0·89	0·21	Tinnevelly.		
8	2	6	2	6	2	3		1	S 80° E	1·7	1·7	3·6	−53	75	·904	3·6	1	3·30	−2·30	0·53	2·25	−1·72	7·42	5·31	+2·08	0·45	Madura.		
7		3	2	4	5	3	4	2	S 9° W	2·5	2·7			70	·777	4·4	2	4·70	−2·70	1·31	2·69	−1·35	6·85	7·58	−0·73	0·77	Periyakulam.		
15			6	1	2	5	1		S 19° E	3·7	3·3	5·0	−34	74	·897	4·3	6	3·10	+2·90	1·85	1·84	+0·01	4·16	4·37	−0·21	0·52	Salem	Madras (South Central).	34
		2	10	1	3	7	7		S 9° W	0·2	0·1	3·5	−97	80	·864	4·9	2	3·50	−1·50	0·69	1·69	−1·00	5·24	3·94	+1·30	0·50	Coimbatore.		
26							4		W	4·4	4·1	3·8	+8	89	·625	6·9	8	5·70	+2·30	3·73	2·67	+1·06	6·00	4·15	+1·85	1·10	Mercara	Coorg	35
3		1	2		1	12	8	3	S 67° W	5·7	5·0			60	·624	2·4	5	2·50	+2·50	1·52	1·97	−0·45	1·80	2·48	−0·68	0·54	Chitaldroog	Mysore	36
2	1		1	1	6	10	9		S 76° W	6·8	5·9	3·5	+69	72	·662	2·8	3	2·40	+0·60	2·29	1·26	+1·03	3·90	2·45	+1·45	1·67	Bangalore.		
	2	2	2	2	2	7	9	4	S 81° W	3·2	2·8			66	·610	3·4	4	4·80	−0·80	1·94	3·10	−1·16	2·60	3·72	−1·12	0·30	Hassan.		
	1	1	2	1	1	12	9	3	S 68° W	6·2	6·7			76	·694	6·2	7	4·30	+2·70	3·26	3·00	+0·36	4·13	3·62	+0·51	0·77	Mysore.		
5			2	17	4	2			S 36° E	9·0	7·9	5·2	+52	76	·947	3·4	0	1·20	−1·20	0	0·56	−0·56	16·52	15·82	+0·70	0	Negapatam	Madras, East Coast, South.	56
26					2	2			S 23° W	1·4	1·7			76	·924	7·2	0	1·00	−1·00	0	0·83	−0·83	10·22	10·83	−0·61	0	Cuddalore.		
17			1	1	7	2	2		S 11° W	4·4		4·0	+10	70	·854	2·2	1	2·10	−1·10	0·14	2·06	−1·92	8·90	6·26	+2·64	0·14	Trichinopoly.		
			1		24	5			S 5° W	8·3		7·9	+5	73	·905	4·2	0	1·10	−1·10	0·02	0·40	−0·38	16·02	7·38	+8·64	0·02	Madras.		
18		1	2		1	8			S 27° W	5·0	5·0			83	·931	5·2	1	1·20	−0·20	0·67	0·71	−0·04	14·11	4·40	+9·71	0·67	Vellore.		
				13	16	1			S 18° E	9·8				70	·865	4·4	0	0·30	−0·30	0	0·40	−0·40	4·40	2·77	+1·63	0	Nellore	Madras, East Coast, Central.	55
	1			5	18	4	1	1	S 2° W	11·2	10·8	8·8	+23	84	1·028	6·1	1	0·50	+0·50	0·18	0·47	−0·29	0·29	1·66	−1·37	0·18	Masulipatam.		
		4	3	9		10	3	1	S 9° E					57	·813	2·2	0	0·70	−0·70	0·07	0·54	−0·47	1·60	1·95	−0·35	0·06	Cuddapah	Madras, Central	54
11	2		4		2	1	10		S 82° W					48	·611	2·1	3	1·70	+1·30	0·65	0·94	−0·29	0·69	1·56	−0·87	0·23	Kurnool.		
6	2		4	2	1	1	8	6	N 68° W	5·4	5·7	5·2	+10	49	·608	2·4	1	1·90	−0·90	0·55	0·74	−0·19	0·55	1·10	−0·55	0·49	Bellary.		
1				1	4	17	3	4	S 51° W	8·6	7·2			80	·959	6·7	0	0·70	−0·70	0	0·35	−0·35	0	2·10	−2·10	0	Cocanada.	Madras, East Coast, North.	52
		1	1			27		1	S 40° W	17·6				70	·820	6·1	1	0·90	+0·10	0·15	0·59	−0·44	0·23	3·04	−2·81	0·14	Waltair (Vizag.)		
1	4				8	15		2	S 43° W	21·4	21·0	14·5	+45	80	·870	1·8	2	1·10	+0·90	0·96	0·69	+0·27	1·41	2·69	−1·28	0·60	Gopalpur		
																											XII.—Hill Stations.		
																	2	1·90	+0·10	0·45	0·96	−0·41	1·34	8·91	−7·57	0·25	Pishin	Baluchistan	48
24				3		1		2	S	2·2	2·3	4·8	−52	48	·254	3·6	2	2·40	−0·40	0·56	1·07	−0·51	1·21	7·96	−6·75	0·27	Quetta.		
	6		3		20		1		S 8° E					53	·261		1	1·10	−0·10	0·29	0·22	+0·07	0·45	3·75	−3·30	0·24	Kalat.		
7	2	1		3	5	7	3	2	S 43° W	10·2	11·2			36	·257	3·7	0	1·60	−1·60	0·13	0·43	−0·30	0·63	5·71	−5·08	0·09	Chaman.		
	1	8	6	1	7	4	2	1	S 67° E	3·0				62	·144	5·8	3	0·70	+2·30	0·65	0·16	+0·49	1·46	1·23	+0·23	0·30	Leh	Punjab and North-West Frontier Province.	30
8	3	1	3	4	4	1	2	4	S 45° E	4·4	4·7			88	·328	5·4	8	6·80	+1·20	3·80	2·60	+1·11	8·81	13·03	−4·22	0·77	Srinagar.		
9	2	6	3	5	2		2	1	N 84° E	4·6	4·2			75	·160	4·0	12			10·62	2·65		31·19			1·33	Sonamarg.		
15	1	2		1	4	6	1		S 16° W	5·3	5·4			54	·190	5·2	4	2·00	+2·00	1·44	3·85	−1·21	3·72	7·42	−3·70	0·53	Skardu.		
23			1	2		1	2	1	S 38° W	2·2	2·3			88	·168	6·0	8	8·80	−0·80	5·06	1·15	+1·21	11·26	16·98	−5·72	1·33	Dras.		
27						1	2		S 72° W	3·5	3·2			57	·255	7·3	6	2·80	+3·20	1·88		+0·73	3·23	2·20	+1·03	0·75	Gilgit.		
25	4		1						N 14° E					61	·273	4·0	4			1·43			3·67			0·43	Chitral.		
26							4		W					51	·226	3·5	7			2·62	3·19		5·14			0·65	Killa Drosh.		
27		1						2	N 27° W	3·3				54	·247	4·5	11	8·50	+2·50	3·41	2·22	+0·22	7·95	11·30	−3·35	0·54	Para Chinar.		
	4	9		2	1	1		13	N 7° W	8·8	8·2			48	·258	3·6	4			1·13		−1·09	2·50	12·39	−9·89	0·42	Cherat.		

Table

Abstract of Observations taken at 8 A.M. at 221

Number of District.	Meteorological Province or District.	Station.	Elevation of barometer above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
30	Punjab and North-West Frontier Province—*concld.*	Murree	6,333	23·822	−·011		23·938	2nd	23·644	25th	·294	57·4	65·4	−3·4	47·7	−4·6	56·6	−4·0	17·7	75·2	30th	39·0	8th & 9th.	36·2
		Poo											57·2		38·9		48·1		18·3	65·8	20th	33·2	26th	32·6
		Simla	7,224	23·103	−·006		23·212	6th	23·010	22nd	·202	56·2	65·1	−0·1	50·9	−1·3	58·0	−0·7	14·2	70·7	6th	40·3	8th	30·4
25	United Provinces.	Chakrata	7,022	23·274	−·017		23·379	6th	23·162	22nd	·217	54·6	67·1	−3·2	50·3	−1·8	58·7	−2·5	16·8	73·7	5th & 6th.	40·4	8th & 9th.	33·3
		Mussooree	6,705	23·549	−·006		23·645	6th	23·430	22nd	·215	58·0	69·1	−3·3	52·7	−1·3	60·9	−2·3	16·4	74·8	6th	41·5	8th	33·3
		Ranikhet	6,069	24·089	0		24·179	6th	23·961	22nd	·218	61·7	73·2	−1·6	55·9	−1·2	64·6	−1·4	17·3	78·0	17th & 30th.	43·0	8th	35·0
		Muktesar		22·850			22·941	6th	22·727	22nd	·214	57·3	69·1		50·2		59·8		18·9	75·7	7th	38·4	8th	37·3
													52·5		32·8		42·7		19·7	58·1	26th & 27th.	27·9	9th	30·2
13	Bengal	Yatung	10,420?									52·4	60·3	−1·9	47·5	−1·4	53·9	−1·7	12·8	64·8	27th	43·9	16th	20·9
		Darjeeling§†	7,376	22·982	−·022		23·031	17th	22·888	22nd	·146	77·5	86·4	+0·7	71·6	+2·5	79·0	+1·6	14·8	91·2	30th	66·3	5th	24·9
	Central India	Mount Abu	3,945	26·027	−·026		26·113	6th	25·933	24th	·180	80·9	94·5	+2·0	71·4	+1·8	83·0	+1·9	23·1	99·2	21st	62·2	5th & 6th	37·0
		Pachmarhi	3,528	26·427	−·017		26·537	2nd	26·335	22nd	·202	61·3	70·0		52·9		59·5		17·1	74·1	29th	49·0	2nd	25·1
	South India	Kodai Kanal	7,688	22·860			22·892	2nd	22·825	18th & 22nd.	·067	63·2	70·7		51·7		61·2		19·0	75·0	28th	45·7	4th	29·3
		Ootacamund		23·089			23·123	1st & 2nd.	23·047	22nd	·076													
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·909	?	29·847	29·986	2nd	29·836	22nd	·150	82·9	91·5	+0·5	78·5	+0·9	85·0	+0·7	13·0	98·0	29th	76·5	3rd & 30th.	21·5
		Colombo	40	29·877	−·004	29·842	29·936	2nd	29·808	23rd	·128	83·1	90·9	+2·0	75·8	−0·2	83·4	+0·9	15·1	93·0	11th & 17th.	73·0	4th, 5th & 7th.	20·0
												55·6			46·7	−1·4						37·6	19th	
	Persia	Meshed	3,104				26·100	8th	25·670	4th	·430	60·4	72·5	+1·1	50·6	+0·7	61·6	+0·9	21·9	80·5	4th	40·0	24th	40·5
		Teheran		§§25·924			24·900	7th & 8th.	24·580	4th	·320													
				‡‡24·765																				
		Ispahan		24·301			24·460	8th	24·100	4th	·360	59·0	72·3	−0·8	46·8	+1·1	59·6	+0·2	25·5	80·3	28th	41·1	5th, 24th & 25th.	39·2
		Bushire‡	14	29·887	−·004	29·860	29·976	7th	29·744	18th	·232	75·7	85·0	+3·4	69·8	+3·1	77·4	+3·3	15·2	100·0	4th	61·7	9th	38·3
		Bahrein†‡	30	29·893			30·001	6th	29·757	18th	·244	78·6	84·2		73·2		78·8		11·0	97·7	4th	66·0	6th	31·7
		Jask		29·819	−·063		29·937	7th	29·699	22nd	·238	81·1	88·6	+1·4	76·2	+2·9	82·4	+2·2	12·4	95·3	24th	72·2	7th	23·1
		Muscat	20	29·847	−·022	29·814	29·942	10th	29·712	23rd	·230	85·6	87·3	+1·5	82·8	+2·4	85·1	+2·0	4·5	94·8	29th	79·3	9th	15·5
	Arabia	Baghdad	220	29·772	−·077	29·672	29·898	24th	29·591	13th	·307	67·9	84·3	+2·7	60·2	+3·3	72·3	+3·0	24·1	92·3	2nd	52·9	5th	39·4
		Bussrah		29·942			30·028	24th	29·834	13th	·194		84·5		67·0		75·8		17·5	90·1	28th	58·4	4th	31·7
		Aden	94	29·818	−·023	29·844	29·925	2nd	29·759	18th	·166	83·0	89·0‖	−0·1‖	79·1‖	+1·8‖	84·1¶	+0·9	9·9	97·8	30th	75·4	12th & 28th.	22·4
		Perim	201	29·706	+·018	29·840	29·785	2nd	29·650	13th & 18th.	·135	83·1	89·0	+0·3	79·4	+0·6	84·2	+0·5	9·6	92·9	30th	74·2	7th	18·7
	Afghanistan	Kabul										51·8	71·7	+0·3	42·3	−2·9	57·0	−1·3	29·4	85·1	17th	35·8	28th	49·3
	Central Asia	Kashgar	4,255	25·522			25·720	15th	25·240	20th	·480	54·2	66·3	−5·3	47·0	−2·0	56·7	−3·7	19·3	82·6	19th	37·3	26th	45·3
	Arabian Sea Islands.	Amini Devi	13																					
		Minicoy	7	29·923		29·855	29·984	3rd	29·882	23rd & 26th.	·102	86·4	89·7	0						91·4	27th			
	Africa	Zanzibar	73	25·925	−·012	29·924	29·982	29th	29·867	6th	·115	80·0	85·3	+0·5	77·8	+0·2	81·5	+0·4	7·5	88·6	1st	74·7	16th	13·9
		Do. Dunga		29·861			29·914	2nd	29·796	6th	·144	78·8	87·9		71·1		79·5		16·8	90·7	13th & 20th.	66·7	10th	24·0
	Straits Settlement.	Penang§	20	29·924		29·869	29·992	5th	29·817	30th	·175	82·5	90·4		74·8		82·6		15·6	92·0	9 days	72·0	9th & 25th.	20·0
		Singapore§	10	29·918		29·849	29·962	2nd	29·878	22nd	·084	83·7	87·1		73·1		80·1		14·0	82·4	20th	70·2	4th	12·2

Note.—When a query is inserted against any reading or in the variation returns for any station, the data for that

§§ Aneroid, uncorrected.

‡‡ Mountain barometer, uncorrected.

‖ Mean of 29 days.

¶ Mean of 28 days.

§ Nine hours' observations.

†‡ Observations of 27 days.

‡ Observations of 29 days.

§† Observations of 19 days.

I—*concluded.*

Stations in India, Burma, etc., in April, 1902—concluded.

Wind Direction. Number of winds from: Calm	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st Dec. 1901 to 30th April 1902.	Normal rainfall for period, 1st Dec. to 30th April.	Variation from normal of period, 1st Dec. to 30th April.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
15	2		3	6	4				S 49° E					61	·283	5·2	8	5·90	+2·10	4·52	3·35	+1·17	7·63	16·05	−8·42	1·20	Murree.	Punjab and North-West Frontier Province—*concld.*	30
22	1		3	2	1			1	S 76° E							4·5	7			4·78	1·72	+3·06	14·53	14·01	+0·52	1·63	Poo.		
1	14	3	3	2	1			6	N 6° E	7·1		2·9	+145	39	·170	4·2	5	3·10	+1·90	2·54	1·70	+0·84	6·70	10·71	−4·01	0·70	Simla.		
7	18	4						1	N 5° E	10·8		6·1	+77	47	·193	4·1	6	3·90	+2·10	3·18	1·44	+1·74	8·24	12·83	−4·59	0·83	Chakrata .	United Provinces.	25
	1		5	5	3	2	11	3	S 50° W					41	·187	3·3	5	2·00	+3·00	2·76	0·84	+1·92	7·06	11·42	−4·36	0·98	Mussooree.		
11	3	4	4	1		4	2	1	N 45° E	3·3	3·8	3·0	+27	45	·230	3·4	3	2·80	+0·20	1·69	1·16	+0·53	4·30	8·77	−4·47	0·66	Ranikhet.		
	1		3	8	1	1	1	15	N 44° W	6·9	6·3			40	·179	2·7	5			2·49			4·81			0·91	Muktesar.		
																	16	12·67	+3·33	6·28	4·69	+1·59	10·18	8·71	+1·47	0·73	Yatung .	Bengal.	13
8	1		1	1		5	2	1	S 59° W	8·7†	8·1†			84	·329	5·6*	10	8·29	+1·71	3·27	4·34	−1·07	6·71	7·84	−1·13	0·61	Darjeeling.		
1	3	2	1	1		11	2	9	N 79° W	9·2	9·3	7·7	+21	32	·303	1·4	1	0·30	+0·70	0·27	0·04	+0·23	0·27	1·00	−0·73	0·20	Mount Abu.	Central India.	
10	1	1	1	2	1	6	4	4	S 75° W	7·3	7·5	5·3	+42	25	·262	1·6	0	0·80	−0·80	0·13	0·25	−0·12	0·73	2·17	−1·44	0·08	Pachmarhi.		
	4	15	8	2				1	N 54° E	10·1	3·0			58	·318	3·2	8	7·00	+1·00	4·33	5·29	−0·96	22·48	17·10	+5·38	1·59	Kodai Kanal.	South India.	
10		6	9	3	1				N 86° E	3·0				57	·325	3·4	11	7·10	+3·90	3·69	3·46	+0·23	9·22	6·84	+2·38	0·80	Ootacamund.		
																											XIII.—Extra India.		
12						18			S 45° W	1·5				88	1·004	2·2	1			0·19	1·81	−1·67	27·53	26·52	+1·01	0·10	Trincomalee	Ceylon.	
		5	15	8	1		1		N 83° E	5·8		5·6	+ 4	81	·923	3·7	9			9·36	12·03	−2·67	24·43	28·76	−4·33	4·11	Colombo		
											3·8			68	·299	4·7	6			1·41	1·78	−0·37	6·23	6·35	−0·12	0·37	Meshed .	Persian.	
9	1	5	3	3	5	1	1	2	S 72° E	2·9	5·4¶			48	·244	3·8	5			1·56	1·18	+0·38	6·07	7·46	−1·39	0·66	Teheran.		
16		1	1			3	8	1	S 84° W	4·2¶	10·9			64	·322	2·6	2			0·90	0·38	+0·52	3·66	2·34	+1·32	0·45	Ispahan.		
3	5	4	2	5		1		8	N 13° E	9·2	?	9·1	+20	77	·682	4·0	1			0·39	0·53	−0·14	3·22	10·24	−7·02	0·31	Bushire.		
	3	4	8	2	4	1		5	N 69° E	?	14·7‖			75	·737		1			0·26			0·89			0·24	Bahrein.		
3	2	1	1	1		1	9	11	N 59° W	12·7‖	4·6			60	·636	2·5	0			0	0·03	−0·03	0·67	3·80	−3·13	0	Jask.		
		2		13	1	4	1	9	S 11° E	4·4	2·5			58	·696	0·4	2			0·27	0·03	+0·24	1·07	3·40	−2·33	0·15	Muscat		
15	3		1		4	1	2	4	N 79° W	1·9				63	·433	2·9	3			1·87	0·96	+0·91	4·41	7·75	−3·34	0·91	Baghdad .	Arabia.	
											9·5						4			1·16			3·86			0·56	Bussrah		
		15	10	3		1	1		N 70° E	9·7	17·5	14·8	−36	74	·839	5·2	0			0	0·38	−0·38	0·41	2·23	−1·82	0	Aden.		
	1		10	11	3	3		2	S 52° E	19·5				86	·982	2·9	1			0·12	0·02	+0·10	1·97	0·97	+1·00	0·12	Perim.		
			6	6	5	9	1	3	S 4° E		2·3			60	·234	4·2	7			2·06	2·24	−0·18	5·07	9·65	−4·58	0·74	Kabul .	Afghanistan.	
24					4	1	1		S 14° W	2·5				53	219	3·5	2			1·15	0·12	+1·03	1·18	0·90	+0·28	0·75	Kashgar .	Central Asia.	
											4·5										2·58						Amini Devi.	Arabian Sea Islands.	
	12	3	2			2	3	8	N 18° W	4·3	6·4			72	·902	4·0	3			1·59	3·67	−2·08	7·75	11·75	−4·00	0·82	Minicoy.		
		2		1	17	10			S 12° W	6·8	4·3			89	·909	7·5	17			9·79	10·39	−0·60	24·25	24·41	−0·16	1·33	Zanzibar .	Africa.	
		3		2	3	16		4	S 45° W	4·4				92	·902	6·0	19			14·27			25·93			2·10	Do. Dunga††		
8	4	10	2	2	4				N 62° E	2·7						1·0	13			10·62			16·52**			1·84	Penang .	Straits Settlements.	
	5	5	6	5	1	2	1	5	N 49° E							5·6	13			8·87			12·25**			1·57	Singapore .		

station are not utilized in calculating the provincial variations.

†† Wind variable 2.

* Mean of 13 days. † Mean of 18 days. ** Rainfall since 1st March 1902 to date.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 64 Stations in India, Burma, etc., in April, 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Bay Islands.	Port Blair	61	29·874	29·765	·109	29·813	+·014	29·804	93·5	79·5	14·0	96·4	76·8	19·6	90·2	90·3	84·9	+1·1	76·9	82·0	81·4	80·1
	Rangoon	41	·865	·705	·160	·789	−·008	·766	99·1	76·8	22·3	102·5	72·9	29·6	89·8	93·8	85·6	+0·9	73·9	77·1	78·1	76·4
	Diamond Island	41	·899	·775	·124	·829	+·007	·805	94·6	80·9	13·7	98·4	79·0	19·4	86·1	86·5	84·9	+3·0	75·5	78·4	78·3	77·4
	Cocos Island	119	·846†	·744‡	·102	·788	P	·830‡	92·7‡	80·7†	12·0	96·5	77·9	18·6	88·6†	89·1‡	85·0‡	+2·7	75·7†	79·3†	79·2‡	78·1
	Akyab	20	·913	·785	·128	·846	+·016	·808	90·8	74·5	16·3	94·1	68·3	25·8	85·5	86·7	81·9	−0·9		77·5	78·6	
Bengal and Orissa.	Chittagong	87	·820	·707	·113	·758	+·013	·792	88·6	71·5	17·1	95·7	65·2	30·5	83·6	84·3	79·2	−1·3	70·2	75·7	76·1	74·0
	Calcutta (Alipore)	21	·827	·695	·132	·759	+·011	·725	92·0	74·5	17·5	97·3	67·4	29·9	86·6	89·4	82·6	−2·4	71·8	78·5	78·8	76·4
	Saugor Island	25	·835	·705	·130	·765	+·012	·735	89·9	80·0§	9·9	92·1	73·1	19·0	86·1	86·9	83·6§	+0·1	75·1	80·5	80·7	78·8
	False Point	21	·842	·721	·121	·780	+·002	·742	88·5	77·9	10·6	92·1	69·6	22·5	86·1	84·6	81·5	−0·4	75·4	80·2	79·8	78·5
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·812	27·694	·118	27·755	−·015	·655	97·3	73·1	24·2	105·8	64·3	41·5	88·4	93·9	84·8	+0·6	61·2	66·2	65·9	64·4
	Darbhanga	166	29·662	29·512	·150	29·585	+·016	·704	92·7	72·0	20·7	100·1	65·4	34·7	83·7	92·0	82·0	−2·1	68·1	74·9	76·7	73·2
	Allahabad	309	·465	·328	·137	·391	−·028	·644	104·6	73·3	31·3	110·1	67·3	42·8	95·3	102·8	89·0	+1·3	62·8	71·1	72·6	68·8
Upper Sub-Himalayas.	Dehra Dun	2,233	27·581	27·494	·087	27·526	−·011	·678	90·4	63·2	27·2	97·0	55·5	41·5	81·1	87·2	76·6	−0·5	53·4	60·7	61·1	58·4
	Roorkee	899	28·878	28·773	·105	28·817	−·014	·665	96·9	65·1	31·8	104·3	56·8	47·5	86·8	94·2	80·9	−0·5	55·1	64·6	65·2	61·6
	Meerut	738	29·030	·923	·107	·970	−·021	·658	98·5	67·1	31·4	107·7	61·3	46·4	89·1	95·0	82·4	−0·1	57·2	65·0	66·6	62·9
	Lahore	702	·069	·975	·094	29·017	−·021	·675	96·6	67·2	29·4	105·5	59·0	46·5	87·6	93·9	81·6	+2·0	58·4	66·7	68·3	64·5
	Ludhiana	812	28·961	·865	·096	28·907	−·011	·674	96·2	68·7	27·5	102·6	60·6	42·0	86·3	94·4	82·5	+1·6	60·2	64·4	66·0	63·5
Indus Valley and N.-W. Rajputana.	Peshawar	1,110	·729	·623	·106	·671	−·017	·761	87·6	60·7	26·9	97·5	52·8	44·7	77·3	84·4	73·7	+0·6	54·2	64·1	65·7	61·3
	Jacobabad	186	2·590	29·462	·128	29·521	−·028	·660	105·4	72·7	32·7	115·7	63·3	52·4	94·4	102·9	88·8	+2·8	69·9	73·6	77·6	70·7
	Kurrachee	30	812	·714	·098	·762	−·030	·742	93·7	78·5	15·2	106·2	71·2	35·0	88·6	88·2	83·9	+4·2	74·0	78·8	80·3	77·7
E. Rajputana, Central India, and Gujarat.	Jaipur	1,431	28·390	28·276	·114	28·328	−·018	·676	102·2	73·3	28·9	107·2	66·9	40·3	93·0	99·6	87·7	+2·6	57·6	66·9	68·2	64·2
	Udaipur	1,925	27·915	27·804	·111	27·860		·676	100·0	73·5	26·5	104·4	65·4	39·0	93·3	96·4	85·9		62·8	74·4	77·5	71·6
	Deesa	466	29·355	29·220	·135	29·282	−·041	·686	106·9	75·7	31·2	111·3	68·2	43·1	94·1	105·3	91·7	+3·7	63·3	71·1	70·4	68·3
	Jamnagar	61	·799	·688	·111	·743		·750	98·2	74·3	23·9	104·6	69·2	35·4	90·0	92·6	84·9		71·9	77·8	78·9	76·2
Deccan.	Belgaum	2,539	27·364	27·242	·122	27·306	−·002	·698	97·0	67·1	29·9	102·4	63·1	39·3	87·2	89·8	79·8	+0·6	64·4	66·8	71·7	67·6
	Sholapur	1,590	28·273	28·113	·160	28·192	−·011	·669	105·0	76·3	28·7	110·2	68·5	41·7	93·2	102·8	89·8	+0·9	63·1	69·4	71·1	67·9
	Akola	930	·904	·751	·153	·822	−·011	·672	107·1	78·1	29·0	110·7	64·8	45·9	96·7	105·3	93·0	+2·5	62·7	69·0	70·3	67·3
	Buldana	2,132	27·740	27·608	·132	27·669	−·010	·670	100·6	77·0	23·6	104·6	63·1	41·5	90·6	98·4	89·0	+0·7	59·9	66·0	66·3	64·1
	Khandwa	1,044	28·788	28·636	·152	28·707	−·021	·670	105·7	78·5	27·2	109·7	67·1	42·6	95·8	104·6	92·9	+3·0	60·4	68·9	70·1	66·5
	Nagpur	1,025	·798	·643	·155	·716	−·005	·660	106·6	77·7	28·9	111·1	68·5	42·6	95·1	103·6	92·2	+1·7	60·5	69·0	69·8	66·4
	Do. (Sanitary Commr.'s Office).	1,013	·809	·667	·142	·733		·666	107·7	78·3	29·4	112·9	68·8	44·1	96·9	105·3	92·4		62·6	72·3	73·9	69·6
	Hyderabad (Deccan).	1,690	·182	·047	·135	·112	+·006	·693	101·4	76·4	25·0	106·4	68·6	37·8	92·0	97·5	88·0	−0·1		74·1	74·3	
West Coast.	Bombay	37	29·869	29·754	·115	29·810	0	·786	90·2	79·0	11·2	91·9	77·3	14·6	85·2	87·2	83·7	+1·1	75·5	78·0	78·6	77·4
	Karwar	44	·880	·762	·118	·819	+·009	·794	90·4	78·9	11·5	91·5	71·4	20·1	87·2	88·5	84·1	+1·1	76·5	78·0	79·1	77·9

† Mean of 29 days. ‡ Mean of 28 days. § Mean of 17 days.

II.

64 Stations in India, Burma, etc., in April, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from											Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·892	·990	·960	·947	+·018	88	70	67	75	− 2	3·1	3·9	3·5	−0·8		3	11	9	31	1		2	3	S. 74° E.	N. 89° E.	60	41	98	116	0	0	Port Blair .	Burma Coast and Bay Islands.
·803	·764	·751	·773	−·011	87	55	48	63	− 3	2·7	4·8	3·8	+0·4																		Rangoon .	
·806	·873	·865	·848	−·003	77	70	68	72	− 4	2·9	2·8	2·9	−0·5	1	2	4	2	1		1	21	28	N. 58° W.	N. 60° W.	72	73	218°	187	0	0	Diamond Island, Cocos Island	
·824†	·880†	·868‡	·857	+·010	79†	55†	63‡	69	− 5	3·1†	2·2†	2·7	−0·4																	0	0		
	·837	·874				68	69			4·9	3·2	4·1	+0·9		1	2	9	10	5	12	13	8	S. 37° W.	S. 65° W.	27	37	68°	96	3·97	1·48	Akyab .	
·730	·786	·795	·770	−·046	94	68	68	77	+ 3	6·4	5·0	5·7	+1·6		2	3	6	11	13	16	7	2	S. 8° W.	S. 9° W	45	44	176°	165	14·00	3·19	Chittagong .	Bengal and Orissa.
·719	·872	·846	·822	+·031	87	68	62	72	+ 4	5·0	4·8	4·9	+2·2	1		1	2	8	29	18	1		S. 7° W.	S. 7° W.	78	71	180	169	6·11	2·41	Calcutta (Alipore),	
·867§	·963	·964	·931	−·004	84§	77	75	79	0	7·0	6·2	6·6	+1·9					11	40	8		1	S. 2° E.	S. 14° W.	89	78	507	419	2·37	1·12	Saugor Island.	
·854	·952	·955	·920	+·015	88	76	80	81	− 2	5·2	5·2	5·2	+1·8		1		1		32	26			S. 19° W.	S. 31° W.	89	79	326°	341	1·74	0·80	False Point	
·397	·369	·303	·356	+·053	49	28	19	32	+ 4	3·9	6·0	5·0	+2·2	2	9	4	1	1	5	17	10	11	N. 86° W.	N. 74° W.	43	46	187°	216	0·31	0·16	Hazaribagh	Gangetic Plain and Chota Nagpur.
·638	·749	·719	·702	+·130	81	64	48	64	+12	1·7	1·4	1·6	+0·6	6	2	2	24	23	1		1	1	S. 72° E.	S. 46° E.	70	15	99	142	0·87	0·46	Darbhanga	
·437	·444	·402	·428	+·044	53	27	19	33	+ 2	2·7	3·0	2·9	+1·5	2	7	3	8	7	1	6	12	14	N. 51° W.	N. 54° W	24	35	131°	117	0	0	Allahabad .	
·293	·279	·214	·263	−·059	51	27	17	32	− 5	3·4‖	4·7‖	4·1	+1·3	1	2	4	6	1	2	11	25	8	W.	N. 82° W.	48	28	61	54	1·62	0·86	Dehra Dun.	Upper Sub-Himalayas.
·307	·317	·240	·288	−·038	50	26	16	31	− 3	1·8	3·0	2·4	+0·4	13	1	1	4	13	2	2	4	20	N. 63° W.	N. 72° W.	12	20	81	78	1·81	1·08	Roorkee .	
·343	·301	·278	·307	−·079	52	23	18	31	− 6	2·5	3·8	3·2	+1·2	16		3	8	2		2	21	8	N. 73° W.	N. 60° W.	28	45	47°	60	0·31	0·18	Meerut .	
·376	·377	·351	·368	−·016	57	29	24	37	0	3·7	4·0	3·9	+1·5	5	16	7	6	6	3	2	4	11	N. 6° E.	N. 23° W.	33	27	80	77	0·25	0·21	Lahore .	
·410	·310	·264	·328	−·084	60	24	17	34	− 9	2·5	3·3	2·9	−0·1	6	4	5	6	6	1	1	23	8	N. 65° W.	N. 54° W.	28	28	80°	54	1·18	1·00	Ludhiana .	
·346	·399	·404	·383	−·027	65	39	36	47	− 5	4·6	6·1	5·4	+1·0	18	7	6	7	2	2	2	7	9	N. 9° W.	N. 8° E.	22	25	70°	104	0·65	0·30	Peshawar .	Indus Valley and N.-W. Rajputana.
·385	·559	·613	·519	+·156	47	36	29	37	+ 5	2·8	2·5	2·7	+0·2	14	6	5	5	11	3	4		12	N. 48° E.	S. 65° E.	11	13	93°	100	0	0	Jacobabad .	
·785	·859	·934	·859	+·127	81	64	71	72	+ 2	1·8	2·3	2·1	+0·4			2			1	31	25	1	S. 66° W.	S. 69° W.	84	81	311°	329	0	0	Kurrachee.	
·284	·337	·301	·307	−·019	34	22	16	24	− 4	3·1	3·9	3·5	+1·2		2	7	6	5	4	13	15	7	S. 72° W.	N. 52° W.	25	52	96	124	0·02	0·02	Jaipur .	E. Rajputana, Central India and Gujarat.
·450	·629	·725	·601		53	40	42	45		1·5	3·7	2·6		12	3		3	5	1	9	19	8	S. 85° W.		42		95°		0·12	0·12	Udaipur .	
·425	·458	·280	·387	+·028	47	29	13	30	+ 2	1·2	2·5	1·9	+0·2		2	1	1		4	20	24	8	S. 77° W.	S. 88° W.	72	57	217	228	0	0	Deesa .	
·755	·791	·805	·784		89	56	53	66		0·7	1·0	0·9			1				1	22	32	4	S. 76° W.		87		452°		0	0	Jamnagar .	
·573	·402	·557	·511	−·009	86	31	41	53	+ 2	1·3	3·2	2·3	−0·5		10	6	2	2	2	10	20	8	N. 53° W.	N. 77° W.	52	35	337	320	0·32	0·39	Belgaum .	Deccan.
·417	·425	·368	·403	+·004	46	28	17	31	+ 1	0·8	4·2	2·5	−0·9		15	5	1	5	2	2	2	28	N. 26° W.	N. 5° E.	58	13	254°	213	0·40	0·33	Sholapur .	
·367	·341	·271	·327	+·026	39	20	12	24	+ 1	1·5	2·3	1·9	−0·1	12	2	2	1	1		5	7	30	N. 55° W.	N. 48° W.	58	58	138°¶	139	0·07	0·06	Akola .	
·307	·335	·249	·297	−·004	34	23	14	24	0	0·3	1·7	1·0	−1·3		7		1	1	1	3	19	28	N. 60° W.	N. 33° W.	76	58	255°	212	0·34	0·25	Buldana .	
·307	·365	·299	·324	−·015	32	22	14	23	− 3	0·8	2·4	1·6	−0·3	2	4	6		1	1	3	23	20	N. 62° W.	N. 48° W.	65	62	206	148	0·15	0·15	Khandwa .	
·315	·387	·308	·337	−·048	34	24	15	24	− 4	1·6	3·9	2·8	−0·2		4	1	2	2	3	11	24	13	N. 87° W.	N. 65° W.	62	22	179¶	161	0·04	0·03	Nagpur .	
·377	·485	·447	·436		40	28	20	29		1·5	3·9	2·7		9		6		13		18		14	S. 50° W.		20		47°		0	0	Do. (Sanitary Commr.'s Office).	
	·624	·565				41	33			1·6	4·4	3·0	+0·7	33	1		5	4	5	2	9	1	S. 23° W.	N. 58° W.	13	2	91°	113	0·40	0·14	Hyderabad (Deccan).	
·835	·867	·868	·857	+·041	85	71	67	74	0	2·0	0·4	1·2	−1·0		1		3	4	3	3	25	21	N. 78° W.	N. 57° W.	62	55	207	264	0	0	Bombay .	West Coast.
·883	·838	·872	·864	+·033	89	65	65	73	0	0·5	1·6	1·1	−1·4	1	3	1		1		6	26	22	N. 72° W.	N. 84° W.	78	76	136	98	0	0	Karwar. .	

‖ Mean of 27 days. ¶ Mean of 29½ days. * Corrected

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure.						Temperature of air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S.L. and for gravity 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	28·959	28·807	·152	28·896			98·2	74·0	24·2	102·3	68·5	33·8	88·6	94·9	85·3		70·8	76·9	78·2	75·4
	Salem	940	·978	·818	·160	·907	−·010	29·764	100·7	76·8	23·9	103·8	71·8	32·0	89·5	94·8	86·1	0	74·0	79·9	81·2	78·4
	Chitaldroog	2,405	27·511	27·366	·145	27·438	−·001	·697	97·3	73·3	24·0	101·8	68·3	33·5	87·4	94·9	84·7	+1·5	65·8	70·8	69·8	68·8
	Bangalore	3,021	26·918	26·817	·131	26·887	+·007	·735	92·9	69·6	23·3	96·9	66·0	30·9	82·9	88·9	80·3	+0·2	64·6	71·1	68·6	68·1
	Hassan	3,091	·882	·765	·117	·828	+·009	·751	90·7	67·8	22·9	94·9	60·3	34·6	83·2	84·9	77·8	+0·2	65·5	68·8	69·1	67·8
	Mysore	2,518	27·431	27·286	·145	27·359	+·006	·740	94·1	70·2	23·9	97·2	64·9	32·3	82·8	91·7	81·5	+0·7	67·0	71·7	70·6	69·8
	Madras	22	29·884	29·751	·140	29·825	+·006	·775	93·4	78·5	14·9	98·0	73·9	24·1	90·3	88·3	84·9	+0·2		78·8	79·4	78·3
	Bellary	1,475	28·404	28·254	·150	28·330	−·005	·702	104·9	78·8	26·1	108·5	71·2	37·3	92·6	100·3	90·3	+1·1	66·5	74·1	72·7	71·1
	Waltair	226	29·662	29·543	·119	29·603		·768	90·2	79·0	11·2	93·2	75·3	17·9	87·2	86·4	83·7		72·4	78·1	78·8	76·4
Hill Station, Baluchistan.	Quetta	5,502	24·643	24·569	·074	24·598	+·006		75·6	46·1§	29·5	85·0	35·2	49·8	68·6	72·9	60·1§	+0·6	41·9†	52·2	53·4	49·2
Hill Stations, Northern India.	Leh	11,503	19·698	19·607	·091	19·659	−·028		52·9	30·1	22·8	60·9	24·5	36·4	44·2	49·3	41·9	−1·1	26·6	34·9	38·0	33·2
	Srinagar	5,204	24·888	24·810	·078	24·841	−·013		66·8	44·0	22·8	77·6	32·6	45·0	56·8	64·3	54·8	−2·5	42·2	54·1	60·0	52·1
	Kailang	10,087	20·980	20·920	·060	20·962	?		50·3	30·1	20·2	60·7	25·0	35·7	40·6	44·5	38·6	−1·5	23·5	34·4	37·3	33·4
	Simla (Ridge)	7,224	23·125	23·078	·047	23·093	+·005		65·3	50·7	14·6	71·7	40·3	31·4	59·6	62·5	57·3	−2·5	42·1†	46·4	48·2	45·5
	Chakrata	7,022	·296	·248	·048	·264	−·007		67·3	50·3	17·0	73·7	40·4	33·3	60·8	62·9	57·7	−2·0	42·1†	48·2	47·3	45·9
	Ranikhet	6,069	24·113	24·041	·072	24·066	+·003		73·4	56·2	17·2	79·1	42·9	36·2	67·3	69·1	63·7	−1·2	46·6	51·3	51·7	49·9
	Muktesar	7,600	22·873	22·811	·062	22·842			69·1	50·2	18·9	77·5	36·4	39·1	62·7	63·9	58·4		41·4	49·2	50·6	47·1
	Katmandu	4,388	25·549	25·451	·098	25·498	?		80·2	52·7	27·5	85·8	46·7	39·1	72·2	74·2	65·0	−1·5	51·3	60·2	59·6	57·0
	Darjeeling	7,376	22·987	22·906	·081	22·945	−·026		60·3	47·5	12·8	64·8	43·9	20·9	54·8	56·0	52·9	−1·0	46·1	51·1	52·2	49·8
Hill Stations, Central India.	Mount Abu	3,945	26·042	25·963	·079	25·997	−·031		86·5	71·6	14·9	91·2	66·3	24·9	80·8	84·1	78·4	+1·9	55·5	61·0	63·0	59·8
	Pachmarhi	3,528	·445	26·338	·107	26·386	−·011		91·8	71·4	23·4	99·2	62·2	37·0	86·1	91·1	83·7	+2·0	56·0	61·4	62·4	59·9
	Chikalda	3,642	·327	·220	·107	·268	−·016		92·8	72·8	20·0	96·9	59·0	37·9	84·6	90·9	83·9	+0·7	57·7	61·3	63·7	60·9
Hill Stations, S. India.	Kodaikanal	7,688	22·876	22·802	·074	22·835			70·0	52·9	17·1	74·1	49·0	25·1	66·3	62·2	59·6		47·4	55·5	57·9	53·8
	Ootacamund		23·100	23·026	·074	23·063			70·5	51·7	18·8	75·0	45·9	29·1	67·9	63·9	59·4		48·9	56·5	57·4	54·3
Extra India.	Aden	94	29·827	29·713	·114	29·761	−·023	·786	89·3	79·1	10·2	97·7	75·3	22·4	85·3	88·2	84·1	+1·3	72·6	77·0	76·2	75·3
	Perim	201	·716	·591	·122	·646	+·016	·779	89·2	79·4	9·8	94·2	74·2	20·0	85·7	85·9	83·5	+0·4	77·1	81·3	81·4	80·0
	Minicoy	7	·931	·844	·087	·881		·813	89·7			91·4			88·0	87·5				77·6	79·3	
	Zanzibar	73	·949†	·836	·113	·893	+·008	·892†	85·3	77·8	7·5	87·9	74·7	13·2	82·0	84·3	81·3	+0·8	75·5	78·3	78·1	77·3
	Port Victoria (Seychelles)	15	·943	·851	·092	·897	−·009	·836	82·8			87·6			84·4	85·8			74·7	77·5	77·8	76·7
	Mauritius (Pamplemouses)	181				·823	‡−·012	·951				88·5	59·8	28·7			75·2	−0·6				

† Mean of 29 days. ‡ Mean of 18 days. § Mean of 23 days. ‖ Mean of 22 days.

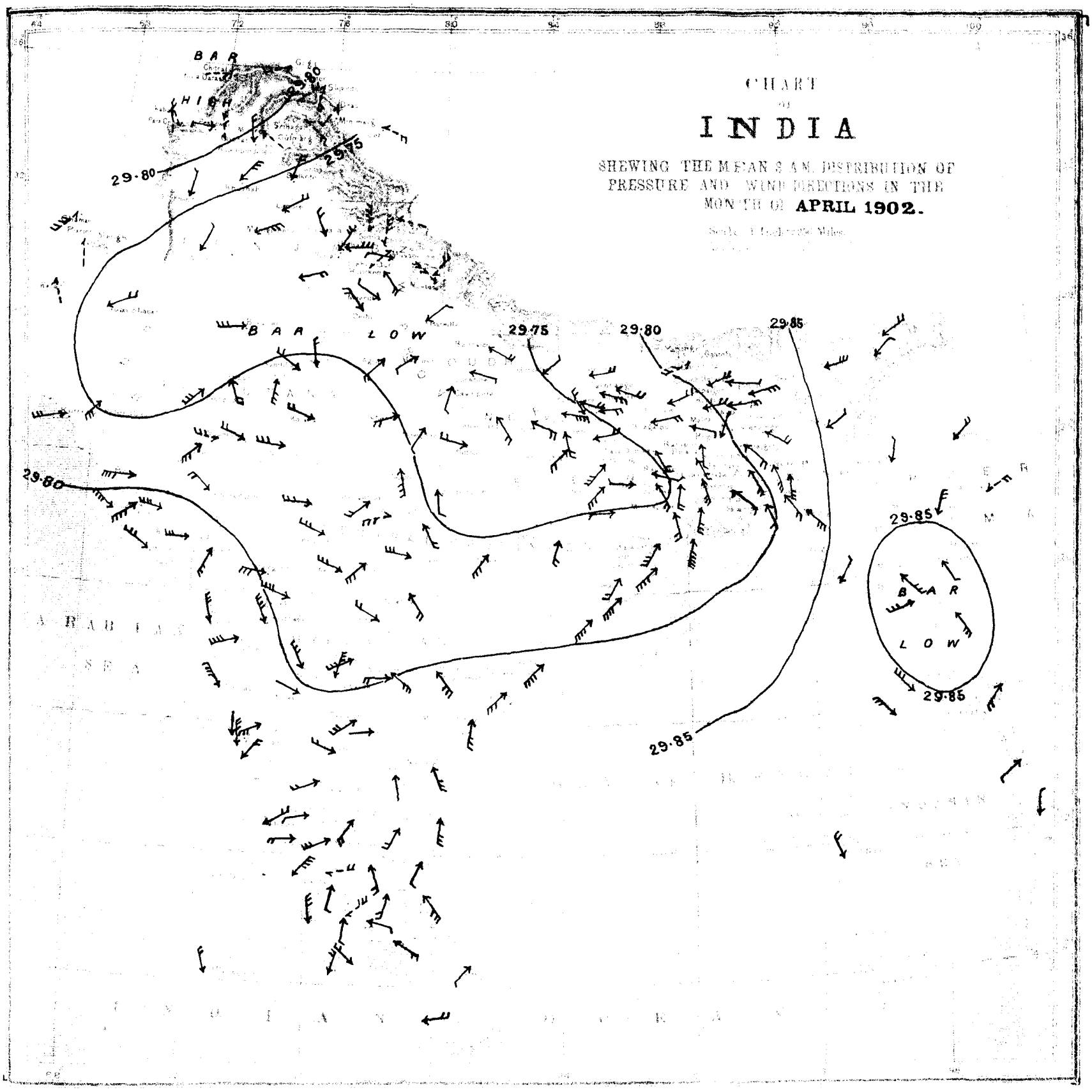
II—*concluded.*

64 Stations in India, Burma, etc., in April, 1902—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.											Wind Steadiness.		Wind Velocity		Rainfall.		Station.	Meteorological Province.
														Number of winds from																	
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·715	·770	·743	·750		85	57	45	62		4·2	6·0	5·1		1		1	12	15	4	9	8	1	S. 23° E.		55		61*		1·34	0·77	Periyakulam**	South India.
·803	·901	·894	·866	+·135	87	65	55	69	+10	4·9	6·7	5·8	+2·1	15	2	1	15	1	9	7	7	3	S. 13° E.	S	17	30	85*	110	1·85	0·52	Salem	
·547	·547	·417	·504	+·024	67	42	26	45	0	2·1	5·6	3·9	+0·4	8	2	5	3	1	2	6	18	15	N. 70° W.	N. 32° W.	45	16	120*	178	1·52	0·54	Chitaldroog	
·555	·625	·465	·548	+·012	77	56	35	56	+ 3	2·8	5·9	4·4	+1·1	2	5	6	11	5	9	9	10	3	S. 2° E.	S. 33° W.	13	40	141*	101	2·29	1·67	Bangalore	
·605	·542	·530	·559	0	88	48	46	61	0	3·5	8·6	6·1	+0·9		2	8	6	3	1	15	16	9	N. 89° W.	N. 21° E.	32	12	70*	95	1·91	0·90	Hassan	
·627	·642	·486	·585	+·017	85	57	33	58	0	6·3	8·1	7·2	+2·7	1	2	3	11	10	3	9	13	8	S. 35° W.	S. 79° E.	13	2	151*	189	3·36	0·77	Mysore	
	·833	·885	·882	+·012		58	66	74	0	4·1	3·1	3·6	+0·6				2	28	24	5	1		S. 20° E.	S. 37° E.	84	82	201	185	0·02	0·02	Madras	
·503	·592	·464	·520	−·002	51	40	24	39	0	1·7	5·4	3·6	+0·2	6	4	1	5	4	12	5	9	14	S. 74° W.	S. 63° W.	23	8	175*	127	0·55	0·49	Bellary	
·712	·845	·887	·815		72	65	71	69		4·5	5·8	5·2					1	3	1	55			S. 40° W.		92		182		0·15	0·14	Waltair	
·224‖	·227	·209	·220	−·038	70‖	33	26	43	− 7	3·0	4·6	3·8	+0·6	21	2			6	3	7	13	8	S. 77° W.	N. 81° W.	33	34	57*	92	0·56	0·27	Quetta	Hill Station, Baluchistan.
·118	·128	·137	·128	+·018	71	44	39	51	+ 7	6·6	7·4	7·0	+0·8		6	5	2	7	12	9	15	4	S. 50° W.	S. 62° W.	28	25	73	70	0·65	0·30	Leh	Hill Stations, Northern India.
·252	·395	·481	·376	+·048	86	84	78	83	+12	5·6	7·3	6·5	+2·2	9	6	3	2	2	4	4	13	17	N. 62° W.	N. 5° W.	42	12	122*	96	3·80	0·77	Srinagar	
·145	·149	·164	·153	−·001	87	59	57	68	+ 7	5·8	8·1	7·0	+1·3		1		1	1	4	33	13	7	S. 61° W.	S. 63° W.	75	73	33	50	4·73	1·05	Kailang	
·131†	·180	·192	·182	−·046	50†	36	35	40	− 4	3·5	5·7	4·6	+0·5		15	4	3	9	11	4	3	11	N. 75° W.	S. 84° W.	10	12	171	138	2·54	0·70	Simla (Ridge)	
·182†	·207	·167	·185	−·035	52†	42	32	42	− 1	3·2	5·0	4·1	+0·6	2‡	6	3		6	19	1		1	S. 18° E.	S. 61° W.	27	24	258	156	3·18	0·93	Chakrata	
·222	·214	·206	·214	−·051	51	35	32	39	− 5	3·1	4·4	3·8	+0·6	10	3	5		3		17	15	7	S. 84° W.	S. 85° W.	43	43	90*	89	1·69	0·66	Ranikhet	
·172	·211	·233	·205		49	39	41	43		2·8	3·9	3·4			4	8	1	18		3	3	23	N. 11° W.		18		152*		2·49	0·94	Muktesar	
·367	·393	·349	·370	−·003	91	50	43	61	+ 1	4·2	6·0	5·1	+0·8				25	1		2	31	1	S. 80° W.	N. 86° W.	13	44	27	36	2·94	0·76	Katmandu	
·298	·338	·352	·329	+·003	91	80	79	83	+ 7	6·01	7·9‡	7·0	+0·9	4			1		1	14	14	4	S. 72° W.	S. 71° W.	71	44	184*	206	3·27	0·61	Darjeeling§§	
·260	·310	·333	·301	+·047	34	30	29	31	+ 3	2·0	3·8	2·9	+1·0		3	3				22	21	11	S. 86° W.	S. 87° W.	70	56	225*	193	0·27	0·20	Mount Abu	Hill Stations, Central India.
·273	·259	·232	·255	+·007	37	21	17	25	− 1	1·4	3·1	2·3	+0·1	16	7	1	2	1	1	7	12	13	N. 66° W.	N. 62° W.	42	43	178*	138	0·13	0·08	Pachmarhi	
·308	273	·275	·284	+·006	39	23	19	27	+ 1	1·3	2·6	2·1	−0·5	35	13			1			1	10	N. 21° W.	N. 47° W.	35	40	176*	194	0·52	0·36	Chikalda	
·275	·335	·441	·350		68	52	79	70		4·7	7·5	6·1			5	22	14	13	1			1	N. 74° E.		67		240		4·33	1·59	Kodaikanal††	Hill Stations, S. India.
·322	·339	·406	·356		84	50	69	68		4·6	7·8	6·2		9	2	18	15	11	1	2		2	N. 80° E.		55		72*¶		3·69	0·80	Ootacamund	
2	·821	·749	·765	+·013	72	68	56	65	− 3	3·3	2·1	2·7	+0·4			14	22	9	5	7		3	S. 82° E.	N. 86° E.	52	62	456	363	0	0	Aden	Extra India.
·901	1·022	1·019	·981	+·184	89	82	82	84	+14	2·0	1·6	1·8	+0·1				17	33	2	2	5	1	S. 52° E.	S. 62° E.	70	55	416*	417	0·12	0·12	Perim	
	·898	·890				68	68			4·4	5·0	4·7			26	8	1		1	1	7	16	N. 17° W.		72		110*		1·59	0·82	Minicoy	
·856	·917	·881	·885	+·038	90	84	75	83	+ 2	7·3	7·2	7·3	+1·6			3	1	16	23	15	2		S. 3° E.	S. 5° E.	72	81	154*	174	9·79	1·33	Zanzibar	
	·85	·849				72	68			4·1	4·4	4·3	−0·8		2	4	14	19	5	5	3	8	S. 57° E.	S. 69° E.	35	10	115	P	1·46	0·56	Port Victoria (Seychelles).	
			·692	−·011				79	− 1																		154	250	1·66	0·71	Mauritius (Pamplemouses)	

§§ Observations of 19 days. ** Wind variable 8. †† Wind variable 4. * Corrected. ¶ Mean of 29½ days.

C. I. C. P. C.—No. 6830 Meteor.—23-5-1902—385.

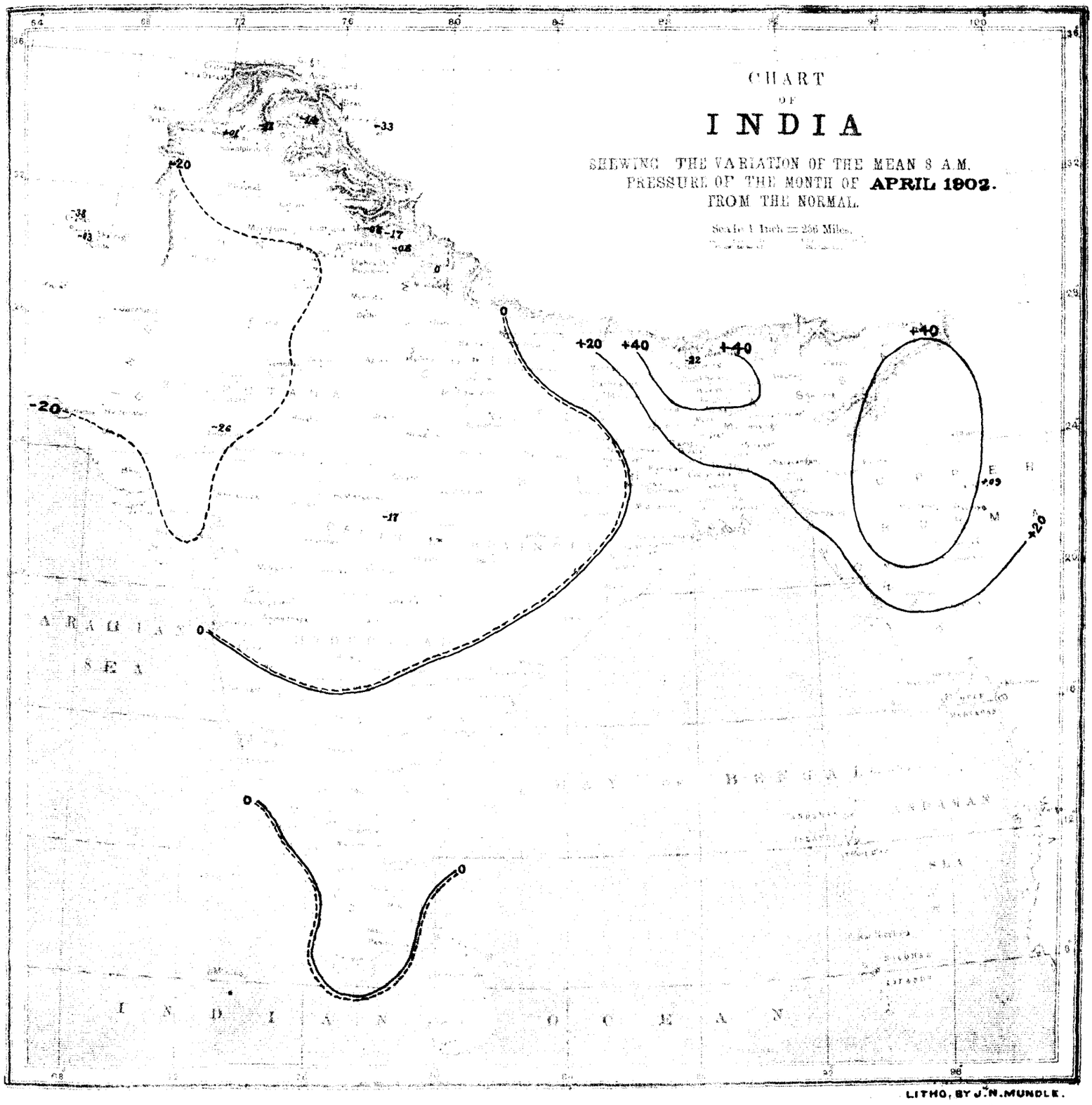


Explanation.

The lines of the above Chart represent isobars or lines of equal barometric pressure, and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of [illegible] inch. The isobars in the Bay of Bengal are filled in by means of the shore observations, and by comparison with the ordinary or normal distribution of pressure as given in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant Meteorological Reporter to the Government of India, and published by the Meteorological Department. Hence they have not the same validity as the isobars in the land area of India itself, but it is probable they deviate very little from the actual.

The mean 8 a.m. wind directions of the month are shewn by means of arrows flying with the wind, and are calculated by means of Lambert's formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0 to 2	miles	per	hour	...	one	feather	added	to	the	wind	arrow
,, ,,	2 to 5	,,	,,	,,	...	two	feathers	,,	,,	,,	,,	
,, ,,	5 to 10	,,	,,	,,	...	three	,,	,,	,,	,,	,,	
,, ,,	10 to 20	,,	,,	,,	...	four	,,	,,	,,	,,	,,	
	over 20	,,	,,	,,	...	five	,,	,,	,,	,,	,,	



Explanation.

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other, one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

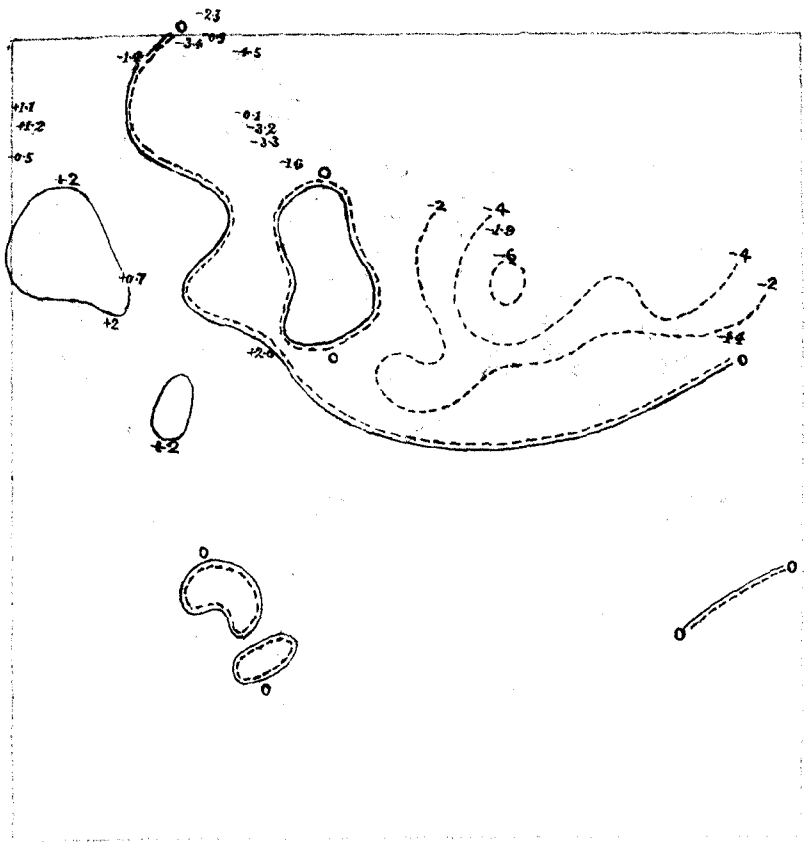
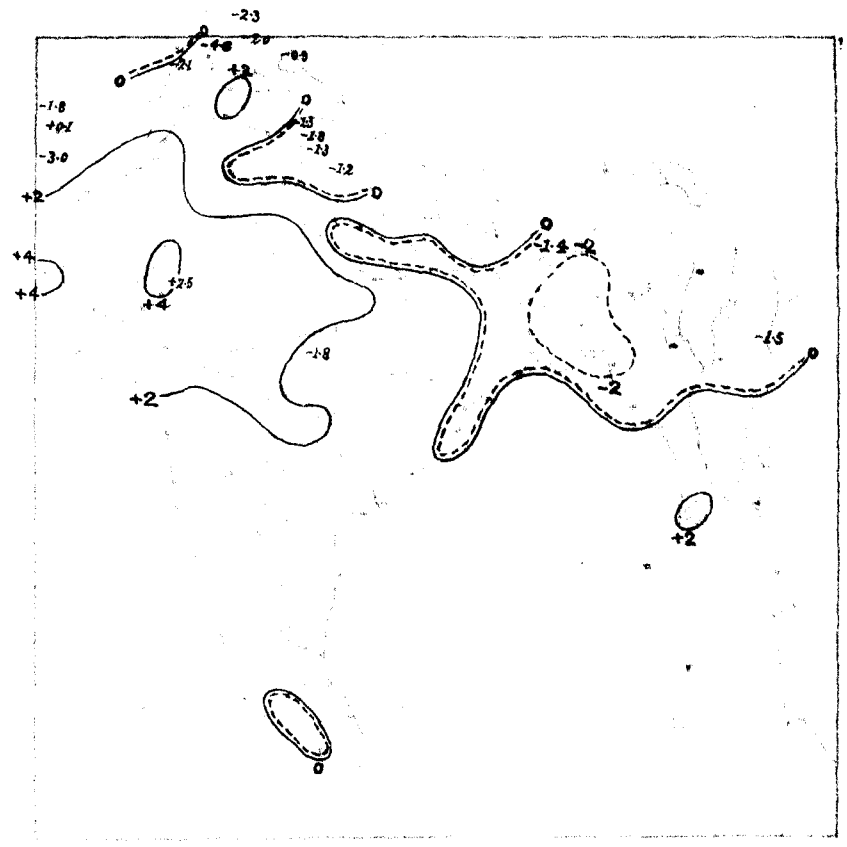
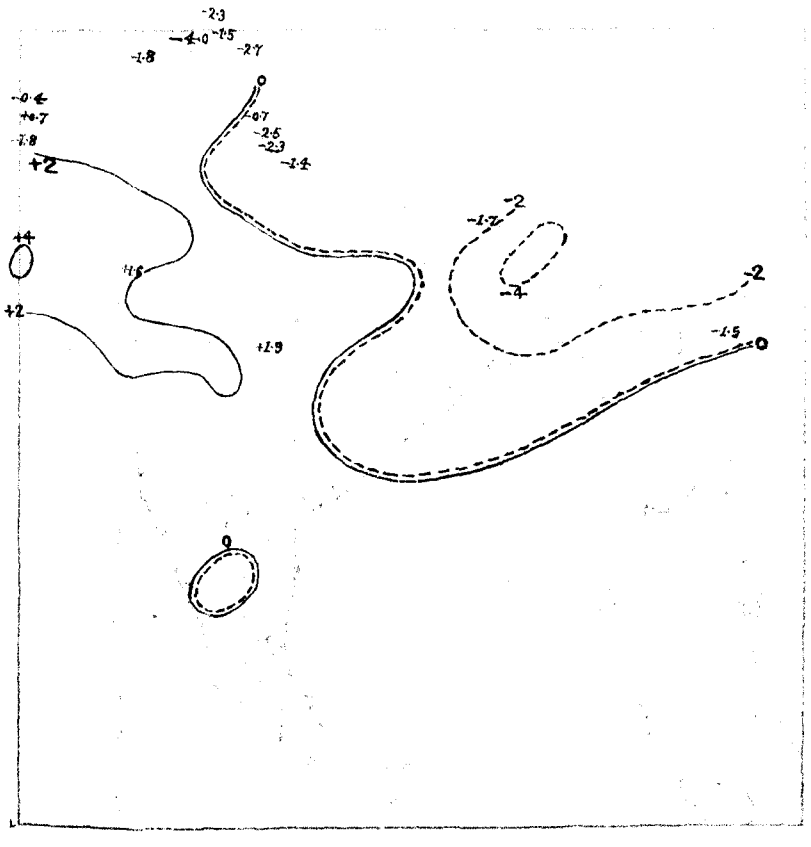
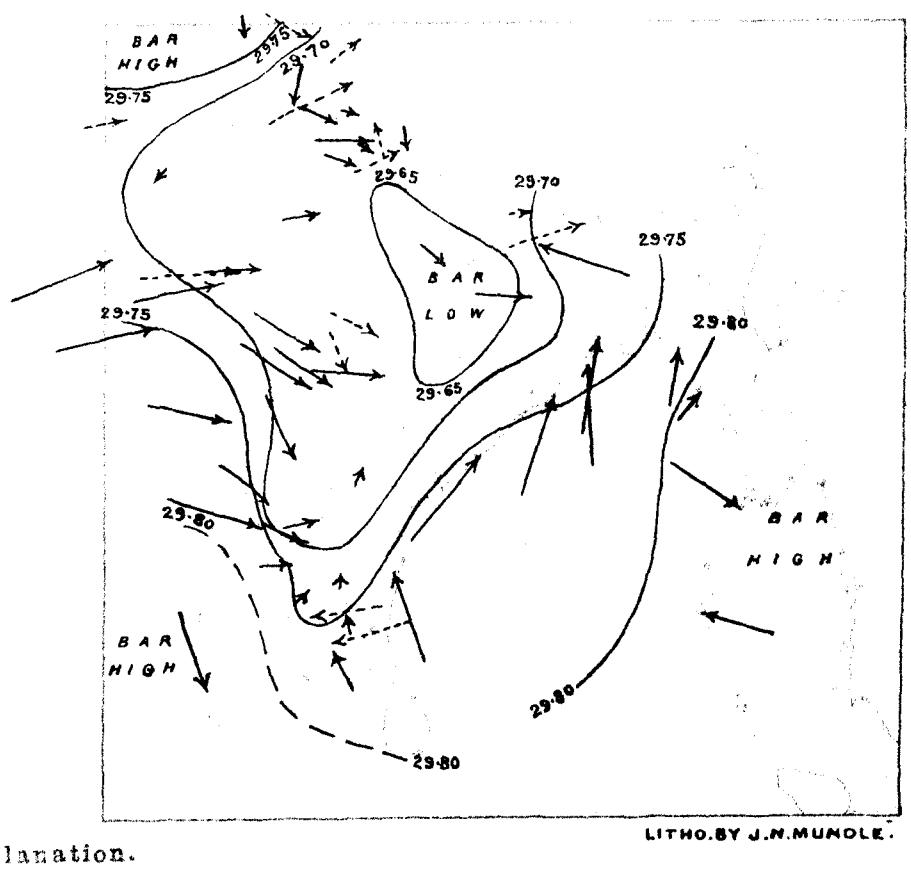


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.







LITHO. BY J.N. MUNDLE.

Explanation.

Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{1}{8}$th of an inch being equal to 100 per cent.

Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India (182 in number), except those at the Hill Stations over 3,500 feet in Elevation. The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.

CHART OF INDIA

SHEWING NORMAL AVERAGE RAINFALL AND THE VARIATION OF THE RAINFALL FROM THE NORMAL OF THE MONTH OF **APRIL 1902.**

LITHO. BY J. N. MUNDLE.

Explanation.

The Chart gives the variations of the rainfall of the month in tenths of an inch from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been available for a sufficient number of years to furnish reliable and useful means. The country is divided into 57 areas, over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means both actual and normal for the months have been calculated, and the numbers given in the centre of each division usually with a + or − sign prefixed, give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The normal average rainfall is also given below in smaller figures enclosed within brackets so that the percentage variation can be at once estimated. The name of the district can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim
2. Lower Burma Deltaic
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. North Western Provinces, East
19. South Oudh
20. North do.
21. North Western Provinces, Central
22. Do. do., West
23. Do. do., East Submontane
24. Do. do., West do.
25. Do. do., Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
34. Travancore
35. Madras, South Central
36. Coorg
37. Mysore
38. Konkan
39. Bombay Deccan
40. Hyderabad, North
41. Khandesh
42. Berar
43. Central Provinces, West
44. Do., Central
45. Do., East
46. Gujarat
47. Kathiawar
48. Sind
49. Baluchistan Hills
50. Central India, East
50a. Do. do.
51. Rajputana East, Central India West
52. West Rajputana
52a. Madras, East Coast, North
52a(a). Do. do. do. (a)
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

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METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

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THE GOVERNMENT OF INDIA.

CALCUTTA, MAY, 1902.

INTRODUCTION.

THIS review of the weather in India during the month of May 1902 is based on observations taken daily at 8 A.M. at 224 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 64 stations. In the rainfall summary, the rainfall data of the meteorological observatories and the rainfall statements of the month published by the Provincial Governments that had been received up to the date of the preparation of the review, are utilized. A summary of the weather in the Bay of Bengal and the Arabian Sea, derived from information extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given.

Summary of the chief features of the weather in India during the month of May, 1902.

The meteorological features of the month may be conveniently considered in two periods coinciding roughly with the first and second halves of the month. During the first period two storms developed, one in the Bay of Bengal, the other in the Arabian Sea and although both were initiated about the 5th, the former advanced over the land area about a week earlier than the other. Both were probably due to the same cause, *viz.*, the interaction between the advancing Trades current and the northerly currents which, in consequence of unusually high pressures over the Indian land areas, held during the early days of May with unusual strength and steadiness over the northern parts of the adjacent seas. The Bay storm probably began to form on the evening of the 4th a little to the north-east of the Andamans and, thereafter advancing in a north-easterly direction, crossed the Burma Coast about 80 miles east of Diamond Island, on the 6th. The Arabian Sea storm probably formed on the 5th in the south of the Arabian Sea, about Lat. 6½° N. and Long. 62° E., and moving first in a north-westerly direction was apparently about 70 miles east of Socotra on the 7th. It then recurved and, thereafter proceeding in a north-easterly direction with gradually increasing velocity, reached the coast of Sind on the 13th, a week after the advance of the Bay storm over Burma. The second half of the month was entirely free from severe storms, the chief features of the weather being the initiation and development in Upper India of a few depressions of small importance.

1. *The period of the Rangoon and Kurrachee storms. May 1st—May 16th.*—On the 1st of the month, pressure was relatively low in Upper India, areas of depression, with roughly marked cyclonic circulations, showing at Sirsa and Allahabad, and relatively high in Assam and Upper Burma, where winds were generally north-easterly. During the next two days pressure rose generally over the whole of India, the rise being especially rapid in North-East India, and by the 3rd was over ·175″ in excess in Upper Assam, the excess diminishing towards the west and south, to about *nil* in the south of the Bay and on the West Coast. On the 3rd, in consequence of the high pressures in the north of Bengal and Assam, northerly and north-easterly winds held over the greater part of Bengal, their extension being favoured by the relatively low pressures then obtaining over the East Satpuras. Against these northerly winds the humid Sea currents advancing from the Orissa coast set up conditions favourable for rain in South-West Bengal, where on that and the following day fairly general light to moderate rainfall was received. As at the same time sea winds set in over the greater part of the East Coast, temperature was on the 4th in moderate to considerable defect over the greater part of North-East India and the East Coast of the Peninsula. The deficiency was greatest at Burdwan, where in consequence of moderately heavy rainfall, the day temperature was more than 11°, and the night temperature more than 7,° lower than usual.

On the 4th pressure gave way slightly over Burma, but

was steady, or rose slightly over the greater part of Upper India and the centre of the Peninsula. On the 5th the fall was rapid over the greater part of North-East India and Burma, and very rapid in Lower Burma, where and in Upper Burma readings were now ·100″ in defect. With this fall of pressure, the northerly winds in the south of the Bay fell off, and the south winds coming on with a rush, set up the whirl which initiated the storm. The general rapid fall continued on the 6th, being very rapid at Rangoon and Bassein. At 8 A.M. on that date the storm, which had intensified considerably, was central near the coast about 80 miles to the east of Diamond Island, winds being very strong (force, 10 to 11, Beaufort's scale) in its south-east quadrant. By the morning of the 7th its centre had advanced to near Yamethin, in Upper Burma, but it was then only a shallow diffused depression of little importance, traceable on the charts chiefly by the feeble cyclonic circulation which still showed there. The storm gave heavy rain in its track, the largest amounts being 5·88″ and 3·92″ at Bassein and Diamond Island, respectively, on the morning of the 6th and 4·07″ and 5·20″ at Moulmein and Bassein, respectively, on the morning of the 7th. The storm was the most severe that has passed over Lower Burma for the last 25 or 30 years, and caused considerable destruction of property and shipping in Rangoon and neighbourhood. The rainfall which accompanied the storm caused a large drop in temperature from the 5th to the 8th; the maxima being in defect by amounts ranging from 10° to 20°. The following gives data :—

DATE.	STATION.	VARIATION FROM NORMAL OF	
		Maximum temperature of date.	Minimum temperature of date.
		°	°
5TH MAY	Mergui	−13·2	+0·9
	Tavoy	−10·3	+0·6
6TH ,,	Rangoon	−12·0	−1·2
	Bassein	−11·5	−3·5
	Diamond Island	−10·3	−4·9
	Mergui	− 6·2	+1·4
7TH ,,	Tavoy	− 8·5	−0·4
	Moulmein	−10·1	−0·5
	Rangoon	−13·2	−3·2
	Bassain	−11·7	−3·5
	Toungoo	−20·1	−4·5
	Minbu	−12·3	−4·6
	Yamethin	−17·3	−3·9
8TH ,,	Toungoo	−10·9	−3·0
	Kindat	−17·3	+0·2
	Yamethin	− 7·5	−5·8
	Mandalay	−11·2	−5·8

With the general fall of pressure during the period from the 5th to the 7th, the high pressures of the first few days of the month passed entirely away: and by the 7th pressure was in almost as large defect in Upper India as it had previously been in excess, the defects exceeding ·150″ in Assam and the North-West Punjab. On the 7th temperature was in very large excess in the extreme north of the Punjab, both day and night temperatures ranging from 10° to 13° higher than usual.

During the next two days pressure rose generally, except in the North-West Punjab, where it fell more or less steadily, and by the morning of the 9th was a quarter of an inch in defect. As pressure was on the 9th normal in the west of the Peninsula, gradients were very steep for south-west winds over Khandesh and Rajputana, where at several stations air movements of over 700 miles in 24 hours were recorded. Winds were on this date unusually strong also over the greater part of the Central India Plateau and the head of the Peninsula, and as far south as the Madras coast, where strong land winds had raised the day temperature from 10° to 14° above normal. The following gives data :—

STATION.	Variation from normal of maximum temperature, 9th May 1902.
	°
Madras	+10·7
Masulipatam	+14·6

On the 10th pressure rose rapidly in Upper India, the rise being especially rapid in the submontane areas of the Punjab, and the centre of the Punjab depression was hence displaced towards the south-west, strong easterly winds at the same time showing in its north-east quadrant. With the extension of these easterly winds, temperature, especially the night temperature, rose very markedly in the North and East Punjab and was in large excess on the 10th, as shown by the following data :—

STATION.	VARIATION FROM NORMAL OF		
	Maximum temperature, 10th May.	Minimum temperature, 10th May.	Mean temperature, 10th May.
	°	°	°
Lahore	+ 8·7	+16·8	+12·8
Ludhiana	+ 2·3	+10·8	+ 6·6
Sialkot	+ 9·5	+15·6	+12·6
Rawalpindi	+12·7	+20·0	+16·4
Peshawar	+13·5	+17·4	+15·5
Dera Ismail Khan	+12·0	+15·9	+14·0
Mooltan	+ 8·7	+14·4	+11·6

The easterly current gave light rainfall on the 10th over almost the whole of Upper India, and on the 11th pressure rose briskly to very rapidly over the whole of North India, the rise being most rapid in the North-West Punjab, where it exceeded a fifth of an inch. With this rise of pressure the easterly current disappeared and was replaced by northerly winds over the greater part of the Punjab and the United Provinces. In consequence temperature fell rapidly over the whole of Upper India, the fall being especially brisk in the north-west of the United Provinces and in parts of the Punjab, where it amounted to over 15° in twenty-four hours. The following gives data for the 11th :—

STATION.	Variation from normal of mean temperature of 11th May.	Change during 24 hours ending 8 A.M. 11th May.
	°	°
Ludhiana	−7·6	−14·0
Sialkot	−4·9	−17·4
Lahore	−3·0	−15·5
Rawalpindi	−0·5	−16·6
Cherat	−3·1	−12·5
Murree	−5·7	−13·1
Peshawar	+3·1	−12·2
Dera Ismail Khan	−3·8	−17·6
Montgomery	−7·9	−15·2
Sirsa	−10·8	−12·3

Showers were general in North-East India from the 9th to the 14th and temperature remained in moderate to considerable defect in that area during the period.

On the 12th, pressure began to fall generally over the Indian region except in Sind, Khandesh and the Satpuras, where it rose slightly. There was consequently at 8 A.M. on this date no indication on the West Coast of the approach of the disturbance, which by 8 A.M. of the 13th had advanced almost up to the Sind Coast.

As noted above, this storm seems to have originated on the 5th about Lat. 6½° N. and Long. 62° E. and to have first moved in a north-westerly direction to the neighbourhood of Socotra, near which, on the 7th and 8th, it seems to have recurved, at the same time increasing considerably in intensity.

From the 8th it seems to have moved almost in a straight line from Socotra in a north-easterly direction its rate of advance being at first only some three or four miles an hour, but increasing later, till in the twenty four hours ending 8 A.M. on the 13th, it probably moved over 500 miles. As the storm was throughout its course small in area, scarcely affecting the weather more than a hundred miles from its centre, it was evidently at too great a distance from land on the morning of the 12th to affect the weather at the coast stations. Though small in area it was very intense, and as it approached the Sind coast had an abnormal depression at its centre of at least an inch. It crossed the Sind coast during the 13th and thereafter travelling very rapidly in the same north-easterly direction, seems to have reached the neighbourhood of Montgomery by 8 A.M. on the 14th, having advanced at the rate of over 27 miles an hour. By this time, however, it had to a large extent filled up and was discernible chiefly by a slight cyclonic circulation of the winds in the south-east of the Punjab.

It was a severe storm during the greater part of its course and caused the loss of at least one vessel, the S.S. *Ehrenfels*, which foundered in the west of the Arabian Sea on the 9th. It also caused considerable destruction of property at Kurrachee on the 13th. All available details of the weather experienced by vessels in the track of the storm in the Arabian Sea and of the destruction of property at Kurrachee are given in the section on the Storms of the month.

The temperature fell very rapidly in the area traversed by this storm. Thus, during the 24 hours ending at 8 A.M. on the 14th, the mean temperature at Hyderabad (Sind) fell over 21°, and similarly in the Central Punjab during the 15th. The following gives data :—

STATION.	VARIATION FROM NORMAL OF			Change in 24 hours ending 8 A.M. on 15th May.
	Maximum temperature, 15th May.	Minimum temperature, 15th May.	Mean temperature, 15th May.	
	°	°	°	°
Jacobabad	−11·6	− 0·4	− 6·0	+ 1·8
Hyderabad (Sind)	−13·5	− 1·4	− 7·5	+14·0?
Sirsa	−19·6	− 9·1	−14·4	− 8.5
Mooltan	−21·7	− 4·5	−13·1	− 7·0
Montgomery	−24·0	−13·5	−18·8	−10·5
Cherat	−21·4	−11·3	−16·4	−14·6
Peshawar	−14·5	− 5·7	−10·1	−13·6
Lahore	−13·6	− 5·0	− 9·3	− 9·8

The rainfall accompanying the storm was, however, in general light. The following were the most important falls recorded at the meteorological stations :—

Station.	RAINFALL DURING 24 HOURS PRECEDING 8 A.M. OF			
	13th May.	14th May.	15th May.	16th May.
	Inches.	Inch	Inches.	Inches.
Kurrachee	1·21	0·64		
Hyderabad		0·52		
Jacobabad		0·06		
Sirsa			0·16	
Montgomery			0·20	
Lahore			0·25	
Mussooree	0·01		0·67	0·01
Chakrata			1·04	
Simla			0·09	0·12
Murree	0·74		0·30	1·04
Srinagar	0·01	0·05	1·27	0·27
Sonemarg	0·05		1·42	0·61
Dras			0·65	0·75
Leh			0·07	0·12

With the disappearance of the storm on the 14th, the disturbed conditions passed gradually away, and by the 18th temperature had risen to about normal over the greater part of North India.

2. *Second Period, from the 17th to the 31st May.*—The weather during the last fortnight of the month was characterized by no feature of outstanding importance. The most important features were (1) the development of the semi-permanent low pressure area in the North-West Punjab from the 16th to the 25th, during which time pressure remained in relative excess in Gujarat and Sind and on the West Coast as far south as Ratnagiri, (2), a feature closely related to the above distribution of pressure, *viz.*, unusually strong winds in Berar and parts of the Central Provinces and the West Deccan, and (3) high temperatures in the Punjab, most marked in the area of low pressure. During the greater part of the period, in consequence of general showers in Bengal and North-East India, temperature remained in moderate to considerable defect in that area, the defect being most marked about the 23rd and 26th.

During this period the usual oscillatory variations of pressure were rather more clearly marked than in the first half of the month when they were to some extent masked by the large and extended variations of pressure produced by the development and advance of the two storms of the period. The following data illustrate this point :—

GENERAL CHARACTER OF DAILY PRESSURE CHANGES DURING THE MONTH.

Number of oscillation.	General movement upwards on		General movement downwards on		Period of oscillation (days).
	Dates.	Except in	Dates.	Except in	
			1st.		?
1	2nd	South India	5th	West Coast.	6
	3rd	Lower Burma	6th	... ...	
	4th	West Coast, Burma and Assam.	7th	Lower Burma	
2	8th	North-West India and East Satpuras.	12th	Central Provinces	6
	9th	North-West India	13th	Lower Burma and south-east coast of Peninsula.	
	10th	Lower Burma			
	11th	... ...			
3	14th	Central Provinces and Head of Bay.	16th	North-West Punjab.	4
	15th	Burma and South-East coast of Peninsula.	17th	Bay area and Burma	
4	18th	Extreme South of Peninsula and Upper Sub-Himalayas.	20th	... ...	5
	19th	West Coast and Deccan	21st	Malabar coast	
			22nd	Submontane area and East Burma.	
5	23rd	Upper Burma	24th	West Peninsula and North-West Punjab.	3
			25th		

GENERAL CHARACTER OF DAILY PRESSURE CHANGES DURING THE MONTH.

Number of oscillation.	General movement upwards on		General movement downwards on		Period of oscillation (days).
	Dates.	Except in	Dates.	Except in	
6	26th	Gujarat and Rajputana Bengal and Assam.	28th	Central Provinces and Bay area.	3
	27th	North-East India, Central Provinces, Burma, Malabar.			
	29th	Gangetic Plain and east of Central Provinces.			
	30th	... ...			
	31st	West Coast and West and Central Punjab.			

The above indicates that while on the mean of the month, the period of an oscillation was between 4 and 5 days, the periods were rather longer than this during the first half of the month, when possibly one oscillation may have been entirely obscured by the large variations caused by the Rangoon storm of the first week. From the 11th to the 27th or 28th, however, the mean period did not differ much from 4 days.

In consequence of these oscillations of pressure, readings were on the 19th in moderate to considerable excess over North India, the excess being especially marked in the South-West Punjab and in Assam and Burma, and about normal in the East Satpuras and the Indo-Gangetic Plain, East, and in the centre and south of the Peninsula. This relative distribution persisted with little alteration throughout the daily oscillatory changes till the 21st, when a relatively large fall of pressure occurred in the South-West Punjab, which reduced pressure readings in the Punjab to about ·100″ below normal, the greatest defect (—·143″) showing at Dera Ismail Khan; pressures however differed little from normal in other parts of the country at this time. The depression in the Punjab was slightly intensified on the 22nd, the greatest defect (—·151″) still showing at Dera Ismail Khan, but elsewhere in India readings differed little from normal. The general upward movement of the 23rd left the distribution unaltered, except that, with the appearance of high pressures in the extreme north of the Punjab, the centre of the Punjab depression was displaced southwards, lowest readings relative to normal showing on this date at Jacobabad, where, however, the variation from normal was only —·077.″ On the 24th, pressure fell in North-East, and rose in North-West, India, and, in consequence the Punjab depression decreased in intensity, while at the same time a depression showed in the east of the Gangetic Plain, in which the greatest defect from normal was —·059″ at Patna. The general fall on the 25th, which

was most marked in the North-East Punjab, led to the deepening of both depressions, their centres at the same time moving slightly, the Punjab depression, towards the hills and the depression in the Gangetic Plain (East), towards the south. the latter being central on the 25th near Sambalpur, where and at Balasore the defect from normal was about ·120". Despite the general rise on the 26th, the Punjab depression advanced on that date towards the south-east, showing at 8 A.M. at the foot of the Kumaon Hills, where it probably broke up in the course of the day. The depression, which showed in the Central Provinces on the 25th, seemed by 8 A.M. on the 26th, to have moved in a south-westerly direction, and showed as a large area of relatively low pressure on the East Coast, the defect being greatest at Vizagapatam and Madras.

As already indicated, the temperature rose steadily in North India after the disappearance of the disturbed weather which accompanied the passage of the Kurrachee storm, till the 22nd, and thereafter remained high till the 25th. After this, in consequence of the general precipitation which extended along the line of the hills from Bengal into Further Kashmir, it fell rapidly, the fall continuing till the 27th, when, at a number of stations along the line of the hills, defects from normal of 12° to 14° were reported in the day temperature. Temperature was on this date lower than usual along the whole Indo-Gangetic Plain from Bengal to the North-West Punjab, the defect being greatest near the foot of the Kumaon Hills.

During the remainder of the month the pressure conditions altered only slightly, the chief change being the gradual retreat towards Assam of the low pressure area in the Bay and its replacement by an area of relatively high pressures overlying the head of the Bay. At the same time pressure was considerably above normal in Gujarat and Sind, so that at the end of the month the pressure distribution was not favourable for an early advance of the monsoon currents.

During the last five days of the month the temperature gradually rose in Upper India and by the close of the month was below normal only in the South-East Punjab, while temperatures in the extreme north of the Punjab were in considerable to large excess.

Meanwhile an advance of humid winds over Burma had given fairly general showers in that area and had reduced temperatures to moderate defect.

Pressure.—The variation of the mean pressure of the month from normal was +·009", a slight increase over the value of the anomaly for April (+·002"). Relatively to the general condition, pressure was in moderate relative excess (1) in Upper Burma, (2) at the foot of the Nepal hills and (3) on the West Coast, the excess in all three areas being about ·020". Pressure was in defect by more than ·020" along the North-West Frontier and in the North Punjab only. Elsewhere the relative variations from the general anomaly were slight and unimportant.

The following table gives the mean pressure variations and anomalies of the month for the eleven meteorological provinces of India:—

Meteorological Province.	Variation from normal of mean 8 A.M. pressure of May 1902.	Pressure anomaly, May 1902.
	"	"
Burma Coast and Bay Islands	+·012	+·003
Burma Inland	+·021	+·012
Assam	+·006	—·003
Bengal and Orissa	+·013	+·004
Gangetic Plain and Chota Nagpur	+·007	—·002
Upper Sub-Himalayas	—·004	—·013
North-Western Frontier Province, Indus Valley and North-West Rajputana.	—·006	—·015
East Rajputana, Central India and Gujarat	+·012	+·003
Deccan	+·009	0
West Coast	+·014	+·005
South India	+·009	0

The vertical anomalies were positive, *i.e.*, pressure was more largely in excess, or less largely in defect, at the hill stations than in the neighbouring plains, in North-Western India, but were negative in North-East India.

Temperature.—On the mean of the month the maximum, or day, temperatures were excessive by amounts exceeding 2° only in Central Burma, the Peninsula, south of Lat. 20° N., and the West Punjab. They were 4° in defect in Chota Nagpur and about 2° over the greater part of Bengal and in the South-East Punjab and at Bhamo in Upper, and Mergui in Lower, Burma. Day temperatures were in slight to moderate defect over the greater part of the Gangetic Plain. The following gives data for representative stations:—

EXCESS.		DEFECT.	
Station.	Variation from normal of mean maximum temperature, May 1902.	Station.	Variation from normal of mean maximum temperature, May 1902.
	°		°
Minbu	+2·3	Chaibassa	—4·9
Yamethin	+2·8	Burdwan	—4·8
Ahmednagar	+3·4	Barisal	—2·4
Secunderabad	+3·2	Narayanganj	—2·5
Bijapur	+2·9	Purnea	—2·4
Cochin	+2·9	Bhamo	—2·7
Quetta	+3·3	Toungoo	—2·9
Mooltan	+2·8	Mergui	—2·2
Rawalpindi	+3·4	Ludhiana	—2·4

The highest day temperatures were generally reported during the last ten days of the month, but they were in no way remarkable. Details are given in the section on "Temperature."

The mean minimum or night temperature of the month was in general excess, except in Central and East Bengal, where it was in slight to moderate defect. The excess was greatest and exceeded 4° in the North-East Punjab and in Hyderabad. It exceeded 2° in the following as well as in the above areas, *viz.*, South-West Punjab, east of Central India Plateau, Gujarat, Khandesh, parts of Deccan, Upper Sind and the southern parts of the West Satpuras. The variations from normal elsewhere were unimportant.

The following gives data for representative stations :—

EXCESS.		DEFECT.	
STATION.	Variation from normal of mean minimum temperature, May 1902.	STATION.	Variation from normal of mean minimum temperature, May 1902.
	°		°
Sialkot	+4·1	Barisal	−1·9
Lahore	+4·5	Chaibassa	−2·7
Rawalpindi	+3·0	Burdwan	−1·1
Jacobabad	+2·5	Dinajpur	−1·3
Jhansi	+3·5	Chittagong	−0·9
Saugor	+2·8	Kindat	−0·8
Nagpur	+2·8	Bhamo	−0·9
Surat	+2·2		
Veraval	+2·1		
Ratnagiri	+2·3		
Hyderabad (Deccan)	+4·5		

The variations of the mean temperatures of the month were in general small and unimportant. The greatest variations were +2° and over in the North-West Frontier areas, Upper Sind, Hyderabad and the neighbouring parts of the Central Provinces and −2° and over in Chota Nagpur, Deltaic Bengal and the South-East Punjab. The variations from normal were very generally positive, being negative only in North-East India.

The following gives data for representative stations :—

EXCESS.		DEFECT.	
STATION.	Variation from normal of mean temperature, May 1902.	STATION.	Variation from normal of mean temperature, May 1902.
	°		°
Sialkot	+3·1	Gorakhpur	−1·0
Rawalpindi	+3·2	Darbhanga	−0·9
Peshawar	+3·4	Dinajpur	−1·8
Mooltan	+3·4	Jessore	−2·3
Jacobabad	+3·0	Burdwan	−3·0
Kurrachee	+1·4	Chaibassa	−3·8
Nagpur	+2·1	Barisal	−2·2
Ahmednagar	+2·5		
Secunderabad	+3·2		
Hyderabad (Deccan)	+3·3		
Raipur	+2·0		

The following table gives temperature data for the eleven meteorological provinces of India :—

METEOROLOGICAL PROVINCE.	VARIATION OF ACTUAL FROM NORMAL OF		
	Mean maximum temperature, May 1902.	Mean minimum temperature, May 1902.	Mean daily temperature, May 1902.
	°	°	°
Burma Coast and Bay Islands	−1·4	+0·4	−0·5
Burma Inland	+0·3	+0·2	+0·3
Assam	−0·4	−0·2	−0·3
Bengal and Orissa	−1·9	−0·8	−1·4
Gangetic Plain and Chota Nagpur	−1·1	+0·1	−0·5
Upper Sub-Himalayas	0	+2·1	+1·1
North-Western Frontier Province, Indus Valley and North-West Rajputana.	+2·0	+1·9	+1·9
East Rajputana, Central India and Gujarat.	+0·4	+1·3	+0·9
Deccan	+1·9	+1·8	+1·9
West Coast	+1·5	+1·5	+1·5
South India	+1·2	+0·8	+1·0

Winds.—Winds were during the month stronger and steadier than usual in Lower Burma and the Bay of Bengal and were more southerly and steadier than usual in Orissa and on the West Bengal Coast. Easterly winds obtained along the foot of the hills from Bengal as far west as Ludhiana. The winds were stronger and steadier than usual over Berar, the Central Provinces and the West Deccan. They were lighter than usual in the Arabian Sea.

Humidity.—The air was damper than usual in North India, except the submontane areas of the Punjab, East Rajputana and the west of the United Provinces. The excess was most marked at Jacobabad, in North-West India, and Darbhanga and Hazaribagh, in North-East India. The air was, on the other hand, drier than usual in the northern half of the Peninsula and in the east of Madras. The defect in percentage humidity was greatest at Nagpur (−7). The humidity was high in the valley of Kashmir, the excess at Srinagar being 12 per cent.

The driest period was from the 4th to the 7th, when per-

centage humidities less than 10 were recorded at stations in Gujarat, Berar and parts of the Central Provinces and Rajputana. The lowest humidities recorded in May 1902 were, however, higher than some previously recorded.

The following table gives variation data of the mean aqueous vapour pressure and mean humidity of nine meteorological provinces for May 1902:—

METEOROLOGICAL PROVINCE.	MEAN ABSOLUTE HUMIDITY.		MEAN RELATIVE HUMIDITY.	
	Average actual, May 1902.	Variation of actual from normal, May 1902.	Average actual, May 1902.	Variation of actual from normal, May 1902.
	"	"	%	
Burma Coast and Bay Islands.	·912	+·015	81	+2
Bengal and Orissa	·931	+·003	80	+1
Gangetic Plain and Chota Nagpur.	·647	+·061	52	+6
Upper Sub-Himalayas	·456	+·003	37	−1
North-Western Frontier Province, Indus Valley and North-West Rajputana.	·684	+·028	52	+5
East Rajputana, Central India and Gujarat.	·481	−·020	35	−3
Deccan	·467	−·002	35	−2
West Coast	·920	+·055	74	0
South India	·686	+·030	61	0

Cloud.—Skies were unusually thickly clouded in Mysore Hyderabad (Deccan) and Orissa, where cloud was in large excess. Cloud was in moderate excess in the Bay Islands and Burma, and in North-East India and Assam, but was less than usual in North Western India, Konkan, Berar, the west and centre of the Central Provinces and in the central part of Madras. The defect was greatest at Buldana, Bellary, Bombay and Karwar.

The following gives variation data of the mean cloud amount in nine meteorological provinces for May 1902:—

METEOROLOGICAL PROVINCE.	MEAN CLOUD AMOUNT.	
	Average actual, May 1902.	Variation of actual from normal, May 1902.
Burma Coast and Bay Islands	6·7	+0·3
Bengal and Orissa	5·6	+0·6
Gangetic Plain and Chota Nagpur	2·8	+0·4
Upper Sub-Himalayas	1·9	−0·2
North-Western Frontier Province, Indus Valley and North-West Rajputana.	1·8	−0·2
East Rajputana, Central India and Gujarat	1·2	−0·7
Deccan	3·1	+0·1
West Coast	2·1	−1·4
South India	4·9	+0·2

Rainfall.—The rainfall of the month was chiefly confined to the hill and submontane areas of Upper India, Lower Sind and Gujarat, North-East India and Burma and the east and south of the Peninsula. The areas of heaviest rainfall were Lower Burma, East Bengal and West Ceylon, in which areas totals of 30 inches, 15 inches and 10 inches, respectively, were reported. The following gives data in illustration:—

AREA.	STATION.	Total rainfall, May 1902.	Variation from normal, May 1902.
		Inches.	Inches.
LOWER BURMA	Tavoy	30·24	+4·19
	Moulmein	28·06	+8·66
EAST BENGAL AND ASSAM.	Barisal	15·18	+5·99
	Noakhali	16·08	+6·02
	Mymensingh	16·42	+3·46
	Jalpaiguri	12·52	+0·48
	Dhubri	18·77	+3·34
CEYLON	Colombo	10·66	−0·46

The month's total was in moderate to considerable excess in Burma, except in the central dry area, where it was in moderate defect. It was also in moderate to considerable excess in Deltaic Bengal, in the North-West Himalayas and Sub-Himalayas and in South Central Madras; it was normal in East Bengal, the East Satpuras, Mysore and South India and in the Oudh sub-montane area; and in more or less considerable defect elsewhere. The largest percentage defects were on the Konkan coast, where, in place of the usual inch, no rain fell.

The following table gives comparative rainfall data of the eleven meteorological provinces or divisions for May 1902:—

METEOROLOGICAL PROVINCE.	RAINFALL.			
	Mean actual for May 1902.	Mean normal for May.	Variation of actual from normal, May 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands.	20·46	15·09	+5·37	+36
Burma Inland.	5·13	5·88	−0·75	−13
Assam	11·25	15·10	−2·72*	−18
Bengal and Orissa	8·78	7·48	+1·30	+17
Gangetic Plain and Chota Nagpur.	1·81	1·63	+0·18	+11
Upper Sub-Himalayas	1·01	0·91	+0·16*	+18
North-Western Frontier Province, Indus Valley and North-West Rajputana.	0·34	0·42	−0·08	−19
East Rajputana, Central India and Gujarat.	0·25	0·38	−0·13	−34
Deccan	0·33	0·89	−0·58*	−65
West Coast	2·31	5·14	−2·83	−55
South India	2·50	2·25	+0·25	+11

* A reference to Table I will show that the means in columns 2 and 3 are derived from a smaller number of stations than the means in the 1st column. The sum of the figures in columns 2 and 3 will, therefore, not agree with the figures in column 1.

JOHN MURRAY.

Atmospheric Pressure.

The mean 8. A.M. pressure of the Indian land area was ·009″ above the normal, and was hence in excess by almost the same amount as in the corresponding months of 1891 and 1901. The excess in May 1891 accompanied, and was partly the result of, the prevalence of lower temperature than usual, whereas in May 1901 and 1902 it was associated with higher temperature than usual over the greater part of the country, and was hence not a direct temperature effect.

Relatively to the general condition, pressure was in local excess in Burma, Cachar, East and Central Bengal, Orissa, the central and submontane districts of the Gangetic Plain, Gujarat, Bombay, Berar, the west of Central India and South and Central Madras. The anomalies were small for all stations in these areas except Kindat (+·027″), Mandalay (+·021″), Ratnagiri (+·024″) and Bahraich (+·021″).

Pressure was in relative defect over the remainder of the country. The deficiency was less than ·02″ over the greater part of the area but was moderately large in the North and West Punjab and Upper Sind. The following gives data for the region of largest negative anomalies:—

DIVISION.	STATION.	Variation from normal of mean 8 A.M. pressure in May 1902.	Pressure anomaly, May 1902.
		″	″
West Punjab	D. I. Khan	—·024	—·033
	Mooltan	—·019	—·028
North Punjab	Peshawar	—·018	—·027
	Rawalpindi	—·018	—·027
	Sialkot	—·014	—·023
Upper Sind	Jacobabad	—·015	—·024

On the mean of the month the usual trough of low pressure in Northern India occupied its normal position.

It may be noted that the chief abnormal features of the pressure distribution of the month agreed closely with those of the corresponding period of 1880.

Pressure was in slight to moderate excess at the level of the hill stations in Baluchistan and Upper and Central India and in slight defect in the Eastern Himalayas.

The following data illustrate these features:—

HILL STATION.	Variation from normal of mean 8 A.M. pressure in May 1902.	PLAIN STATION.	Variation from normal of mean 8 A.M. pressure in May 1902.	Vertical pressure anomaly (Hill—Plain).
	″		″	″
Leh	+·031	Lahore	—·008	+·039
Quetta	+·027	Jacobabad	—·015	+·042
Murree	+·004	Peshawar	—·018	+·022
Simla	+·016	Ludhiana	—·009	+·025

HILL STATION.	Variation from normal of mean 8 A.M. pressure in May 1902.	PLAIN STATION.	Variation from normal of mean 8 A.M. pressure in May 1902.	Vertical pressure anomaly (Hill-Plain).
	″		″	″
Chakrata	+·011	Roorkee	+·007	+·004
Ranikhet	+·014	Bareilly	+·011	+·003
Darjeeling	—·004	Dhubri	+·007	—·011
Mount Abu	+·010	Deesa	+·011	—·001
Pachmarhi	+·017	Hoshangabad	+·007	+·010
Wellington	+·017	Coimbatore	+·008	+·009

The pressure conditions were practically normal in Persia, Arabia and the Equatorial Belt, as is shown by the following data for representative stations:—

STATION.	Variation from normal of mean 8 A.M. pressure in May 1902.
	″
Bushire	—·005
Aden	—·027
Zanzibar	—·008
Seychelles	—·008

In the South Indian Ocean and Australia the conditions were, so far as can be judged, as abnormal as in the preceding month, pressure being about a fifth of an inch in excess at Adelaide and in slight defect at Mauritius.

The chief abnormal features of the pressure distribution of the month may be summed up as follows:—

(1) Pressure was in slight general excess in the Indian area.

(2) The local variations of pressure from the normal were comparatively small over the greater part of the country, the only important abnormal features being (1) a moderately large deficiency in Upper Sind and the western half of the Punjab and (2) a moderate excess in parts of Upper Burma and on the Mid-Konkan coast (represented by Ratnagiri).

(3) The vertical pressure anomalies were positive in North-West and Central India and negative in North-Eastern India.

Barometric depressions and cyclonic storms of the month.

At the beginning of the month pressure was in moderate excess over Upper Burma, Assam and Bengal and in slight defect over the Gangetic Plain and the South-East Punjab. In consequence of these abnormal pressure features, winds were more easterly than usual over Lower Bengal and the head of the Bay and weather was fine with a few local thundershowers over Assam and Bengal. A very feeble depression lay over the South-East Punjab but was of no importance. Ordinary winds of indraught to the heated land area obtained along the east and west coasts of the Peninsula, but both in the Arabian Sea and the Bay of Bengal the air movement at a distance from land was feeble and irregular. Moderate westerly winds prevailed in the north of the western half of the equatorial belt and south-west winds were advancing northwards over the extreme south-west of the Arabian Sea along the African coast. Pressure increased generally over India on the 2nd and 3rd and at 8 A.M. of the latter day was more or less in excess over the whole land area. The excess was least and insignificant in the west of the Peninsula, Ceylon and Tenasserim (about ·010″ in amount) and largest in the submontane districts of North-Eastern India, where it averaged about a sixth of an inch.

Weather was fine over the whole of the country with the exception of Assam and Bengal where the usual afternoon thundershowers were being received.

Abnormal northerly winds—an outflow from the region of excessive pressure in Assam and Upper Burma—prevailed over the north-east of the Bay and to the north of the Andamans. The most important feature of the air movement over the sea area, however, was the continued advance of humid south-west winds over the region lying between the equator and the south of the Arabian Sea. West to south-west winds of force 2 to 4 and rainy weather now prevailed to the south and west of Ceylon, an indication that a portion of the southerly humid current was passing round Ceylon and advancing over the south of the Bay. The barometric changes during the 3rd were generally small in amount and made no important alteration in the pressure conditions obtaining on the previous day. Pressure gave way locally in Lower Burma and the south-east of the Bay and was in very slight defect in that area at 8 A.M. of the 4th. Humid south-west winds, which were on the previous day confined to the extreme south of the Bay, had now extended up to about Lat. 12° N. and over 3 inches of rain had been received at Mergui, the most southerly station on the Tenasserim coast. Skies were densely clouded at Port Blair, where a light west-north-west wind was blowing. The advancing humid winds had not as yet affected conditions over the Andaman Sea, and fine weather with light irregular winds and a smooth sea obtained in that area.

The following data indicate the character of the air-movement and weather over the south and east of the Bay and the Burma Coast at 8 A.M. of the 4th:—

(1) BAY OF BENGAL.

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer (corrected.)	WIND. Direction.	WIND. Force.	WEATHER.
	° ′	° ′	″			
S. S. *Pekin* .	5 55	94 23	29·805	SW	4 to 5	Raining; 9-55 A.M. heavy rain squalls.
S. S. *Bengal* .	6 00	96 49*	·834	W	2	Rainy; 4 A.M. frequent heavy rain squalls.
S. S. *Ula* .	10 03	84 43	·841	SW	2	Dull rainy appearance; 8 P.M. occasional rain showers.
S. S. *Itinda* .	10 51	88 24	·845	SSW	2	S. swell; fine.
S. S. *Purnea* .	13 22	96 41	·802	W	2	Cloudy; 8 P.M. squally.
S. S. *Arratoon Apcar.*	15 06	92 53	·801	W	1	Fine; noon cloudy.
S. S. *Maharani*.	15 12	95 18	·817	NE	3	Fine; smooth sea.

* Noon position.

(2) BAY ISLANDS AND THE BURMA COAST.

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	″	″	″				Inches	
Port Blair .	29·823	—·034	+·017	WNW	5	9	0·30	Cloudy.
Cocos Island	·812	—·055	...	...	...	6	...	
Diamond Island.	·814	—·040	0	NNW	9	4	...	
Rangoon .	·807	—·039	—·005	NNW	8	4	...	
Moulmein .	·818	—·029	—·001	E	2	2	...	
Tavoy .	·823	—·021	—·017	Calm	2	6	0·07	
Mergui .	·833	+·001	+·009	SSE	4	6	3·25	Raining.

The marine information for the Arabian Sea and the adjacent equatorial region is unfortunately not so complete as for the Bay of Bengal, but suffices to establish that light to moderate north-east winds obtained over the south of the Arabian Sea, variable winds between the parallels of 4° and 6° N, and south to south-west winds, force 2 to 5, over the north of the equatorial belt.

The following gives marine information for this region for the 4th :—

NAME OF VESSEL.	8 A.M. POSITION. Lat.N.	Long. E.	Barometer (corrected.)	WIND. Direction.	Force.	WEATHER.
	° ′	° ′	″			
S. S. *Umlasi* .	1 41	S 62 07	29·831	W	2	Fine.
S. S. *Clan Mackay.*	2 25	S 55 04	·828	S	4	Smooth sea and fine.
S. S. *Patiala* .	0 05	44 52	·846	S	5	Moderate sea and passing clouds.
S. S. *Tagus* .	1 05	55 00	·826	SSW	2	Fine; 8 P.M. squally with heavy rain.
S. S. *Safari* .	5 45	64 31	·815	Var.	2	S. swell and passing showers
S. S. *Palawan* .	9 41	65 41	·812	NE	2	Fine; 8 P.M. squally.
S. S. *City of Cambridge.*	10 27	60 01	·812	NE	2	Fine. Midnight lightning.
S.S. *Wildenfels*	10 35	60 12	·816	NE	3	
S. S. *Clan Maclaren.*	10 40	57 35	·776	ENE	4	Smooth sea and fine.
S. S. *Braunfels*	12 45	54 00	·764	SE	1 to 2	

The preceding data show the existence of an intermediate zone of light variable winds between two opposite systems of air movement. Weather was fine in the region of north-east winds and cloudy and showery over the remainder of the area.

Important pressure changes occurred during the 4th. Pressure gave way over the whole of the Indian region, with the exception of the west of the Peninsula ; it fell briskly to rapidly in Burma and North-East and Upper India and slightly elsewhere. The effect of these changes was to reduce the prevailing excess of pressure in North-East India by about a tenth of an inch. The brisk to rapid fall of the barometer, which had occurred in Burma and the neighbouring sea area, was connected with the formation of a well-defined cyclonic storm in the region between the Andamans and the Pegu coast.

The following is a brief history of this storm :—

Cyclonic storm of the 4th to the 7th May in the Bay of Bengal.

5th May—Important barometric changes occurred on this day in Lower Burma and the adjacent part of the Bay. During the previous four days this region had been occupied by unsteady winds, chiefly from northerly directions, while humid southerly winds were advancing up the centre and east of the Bay. It was almost certainly this rush of southerly winds into the area of unsteady northerly breezes that initiated the cyclonic circulation.

The following table gives the meteorological information obtained from the logs of vessels in the Bay on this day :—

NAME OF VESSEL.	8 A.M. POSITION. Lat.N.	Long. E.	Barometer (corrected.)	WIND. Direction.	Force.	WEATHER.
	° ′	° ′	″			
S. S. *Hiroshima Maru.*	5 27	96 49	29·832	WSW	2	Moderate N.W. swell.
S. S. *Bengal* .	6 01	93 00	·813	WSW	5	S. S. W. swell; 4 P.M. passing heavy rain squalls.
S. S. *Pekin* .	6 05	91 12	·795	WSW	4	Light rain.
S.S. *Glamorganshire.*	7 47	97 28	·831	Var.	6	Moderate sea and squally with heavy rain.
S. S. *Itinda* .	8 53	85 27	·780	W by S	2	Fine; noon occasional rain.
S. S. *Purnea* .	10 02	96 51	·759	SW	6	Squally and occasional rain. Midnight violent rain squalls.
S. S. *Islanda* .	10 08	86 58	·770	N	2	Smooth sea and cloudy; 8 P.M. squally.
S. S. *Arratoon Apcar.*	11 39	95 15	·781	Var.	...	Confused sea and continuous rain ; 4 A.M. thick squalls.
R. I. M. S. Elphinstone.	?	?	·370	ESE	11 to 12	
S. S. *Goa* .	15 40	94 33	·697	NE	9	High confused sea and hard rain ; 4 P.M. heavy wind and rain squalls.
S. S. *Malda* .	Rangoon		·749	...	...	4 P.M. occasional heavy squalls of wind and rain.
S. S. *Purulia* .	16 31	97 20	·712	ESE	4	Moderate sea and overcast.
S. S. *Surada* .	17 47	86 52	·757	NW	2	Fine.
S. S. *Foxton Hall*	18 54	90 28	...	NE	2	Fine. Midnight heavy squalls with thunder.
S. S. *Madura* .	18 58	90 20	·774	SSE(?)	2	Smooth sea and fine.
S. S. *Flamingo.*	19 35	87 51	...	W	3	Smooth sea and fine.

These data indicate that the winds were generally cyclonic in direction over practically the whole of the Bay. They were not, however, strong except in the storm area where the S.S. *Goa*, probably not more than 120 miles to the north-north-west of the centre, experienced north-east gales of force 9 and the R I. M. S. *Elphinstone*, probably less than 70 miles from the centre, a hurricane. The meteorological information supplied by the latter vessel is very valuable, and shows that the inner area of hurricane winds was probably of small extent, and that the transition from the outer to the inner area was unusually abrupt. The vessel entered the eastern quadrant in the early morning and was apparently carried round by the force of the storm winds through the northern and western quadrants into the southern quadrant in less than 12 hours.

The following gives her log in full :—

Hour.	NAME OF VESSEL.	8 A.M. POSITION. Lat.N.	Long. E.	Aneroid barometer (uncorrected.)	WIND. Direction.	Force.	WEATHER.
		° ′	° ′	″			
4th, Noon	R. I. M. S. *Elphinstone.*	Left Rangoon for Bombay.		29·840	SE	4	Smooth sea and overcast.
4 P.M.	»	...	...	·770	SSE	3	Smooth sea and fine.
8 »	»	...	...	·820	S	2	Smooth sea and lightning.
10 »	»	...	...	·810	...	3	Lightning.

Hour.	Name of vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Aneroid barometer (uncorrected.)	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′	″			
Midnight	R. I. M. S. *Elphinstone*	...	...	29·760	ENE	5	High E. swell and squally rainy.
5th, 2 A.M.	„	14 44	95 09	·560	NE by E	8	Very heavy sea with hard squalls and blinding rain.
3 „	„	...	...	·540	E	9	Sea increasing.
4 „	„	...	...	·480	E by S?	10	Very heavy squalls and blinding sheets of rain.
5 „	„	...	...	·460			
6 „	„	...	...	·460	...	...	Gale increased to hurricane, sea rapidly increasing; kept ship's head to windward, unable to walk about decks; confused sea.
7 „	„	...	...	·420	...	10 to 11	
8 „	„	...	...	·400	ESE?	11 to 12	
9 „	„	...	...	·370	NE by E	12	
10 „	„	...	...	·260	NE	12	
11 „	„	...	...	·180	N	12	
Noon	„	...	...	·150	NW	12	
1 P.M.	„	...	...	·180	...	12	
2 „	„	...	...	·220	...	...	Sea tremendous, terrific squalls of wind, blinding sheets of rain and mountainous sea.
3 „	„	...	...	·360			
4 „	„	...	...	·420	NW by W	12	Rainy, squally.
5 „	„	...	...	·460	W	9 to 12	Wind and sea increasing.
6 „	„	...	...	·580	W by S	8 to 11	
7 „	„	...	...	·580	WSW	...	Blowing strong gale and squally.
8 „	„	...	...	·630	SW by W	6 to 8	Very rough and confused sea.
9 „	„	...	...	·660	...	9	Squalls decreasing in rapidity and violence.
10 „	„	...	...	·680	SW	7	Wind and sea moderating.
11 „	„	...	...	·670	...	6	Do. do.
Midnight	„	...	...	·680	SSW	11	Do. do.
6th, 1 A.M.	„	...	...	·680	...	6	Very hard squalls and confused sea.
2 „	„	14 15	94 38	·660	...	9	
3 „	„	...	...	·670			
4 „	„	...	...	·670	WSW	8	Squally, rainy.
6 „	„	...	...	·690	...	8	Heavy squalls and heavy rain.
7 A.M.	R. I. M. S. *Elphinstone.*	...	...	...	...	...	Wind and sea moderating.
8 „	„	...	...	29·740	...	...	Squally rainy and high confused sea.
10 „	„	...	...	·760	...	7	Do. do.
Noon	„	13 24	93 56	·780	WSW	6	Squally.

The barometric readings recorded on board this vessel were those of an aneroid barometer which, so far as can be ascertained, was reading from ·03″ to ·05″ too high. The lowest reading registered was 29·15″ at noon, and was almost certainly about ·6″ below the normal.

Weather was very disturbed over the east and south-east of the Bay, almost all the vessels in that area reporting heavy to hard squalls with much rain.

The observations recorded at the Lower Burma stations indicated clearly the existence of the storm. Skies were more or less thickly clouded over Lower and Central Burma and light to moderate showers had occurred in the coast districts. The following gives data for the coast stations and the Bay Islands:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	″	″	″				Inches	
Port Blair .	29·743	—·080	—·061	WSW	13	9	0·16	Cloudy.
Cocos Island	·638?	—·124	?	...	...	10	0·24	
Mergui .	·770	—·063	—·052	Calm	5	6	1·46	Sultry.
Tavoy .	·777	—·046	—·062	Calm	1	7	0·46	Showery.
Moulmein .	·732	—·086	—·087	N	3	9	...	
Rangoon .	·748	—·059	—·062	NE	7	7	...	
Bassein .	·740	—·076	—·054	Calm	8	9	0·58	Drizzling.
Diamond Island.	·697	—·117	—·115	NNE	15	10	0·57	Sea rough.

The whole of the available information when charted indicates that the storm was probably central at 8 A.M. in approximately Lat. 14° N. and Long. 94° 50′ E. The barometer at the centre at that hour read almost certainly lower than 29·3″, and the deficiency of pressure hence probably exceeded half an inch. It was therefore a storm of considerable intensity.

6th May—Pressure had continued to give way over the whole of India. The decrease was brisk over the Peninsula and rapid over Northern India. These changes had modified the distribution of pressure very considerably over India, where pressure was now more or less below the normal.

The barometer had fallen very rapidly in Lower Burma and the North Andaman Sea, the fall amounting to nearly three tenths of an inch at Rangoon and Bassein. It had, on the other hand, risen slightly on the South Tenasserim coast. The storm in the Bay had intensified and was giving strong cyclonic winds at the Burma coast stations. Its position and character at 8 A.M. are indicated by the following observations taken on the Burma coast :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches	
Mergui .	29·790	+·020	—·031	Calm	3	6	0·82	
Tavoy .	·721	—·056	—·116	SW	3	7	0·35	Drizzling.
Moulmein	·617	—·115	—·202	SE	3	10	0·04	Drizzling.
Rangoon.	·471	—·277	—·337	SE	19	10	?	Continuous rain.
Bassein .	·460	—·280	—·332	NNE	17	10	5·88	Squally.
Diamond Island.	·486	—·211	—·323	NW	39	10	3·92	Sea tremendous.
Akyab .	·654	—·083	—·141	NW	2	9	...	

These observations show that the storm centre was now crossing the coast to the east of Diamond Island. Skies were overcast in Burma and heavy rain had fallen in front of the storm at Diamond Island and Bassein and light showers in Central Burma.

The following table gives the observations taken this day on board ships in the centre and east of the Bay :—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer (corrected.)	WIND. Direction.	WIND. Force.	WEATHER.
	° ′	° ′	"			
S.S. *Catherine Apcar.*	Singapore .		29·819	...	...	8 P.M. fine.
S.S. *Union* . .	2 45	101 12*	·820	E	2	Fine.
S.S. *Pekin* . .	5 51	88 02	·765	WSW	4	Squally.
S.S. *Bengal* . .	5 58	88 30	·766	WSW	5	South-west swell and squally, 8 P.M. frequent heavy rain squalls.
S.S. *Hiroshima Maru.*	6 08	93 04	·772	SW	4	Moderate sea.
S.S. *Purnea* . .	6 08	98 34	·751	SW	4	Cloudy.
S.S. *Arratoon Apcar*	8 29	97 33	·761	WSW	4	Cloudy; noon squally.
S.S. *Glamorganshire.*	10 13	95 42	·761	SW	2	Rain squalls.
S.S. *Islanda* .	12 05	89 50	·711	NW	4	Cloudy.
R. I. M. S *Elphinstone*	13 24	93 56*	·716	WSW	8 to 9	High confused sea and squally; 6 A.M. heavy squalls and heavy rain
SS. *Lethington* .	14 48	96 07*	...	S	10 to 11	Heavy squalls of wind and rain.
S.S. *Goa* . .	15 02	93 46	29·614	W	9	Frequent heavy squalls from north-west.
S.S. *Goodwin* .	15 27	95 35*	·488	SW	8	High sea and thick rain; 4 A.M. heavy rain squalls.
S.S. *Malda* . .	15 27	94 35	·478	SW	10	Cross sea and thunderstorm; 4 A.M. continuous heavy squalls of wind and rain.
S.S. *Madura* .	15 45	93 51	·520	NNW	6	High sea; 4 P.M. occasional rain squalls.
S.S. *Foxton Hall* .	16 27	93 13	...	NNW	...	Continuous rain; 4 A.M. heavy squalls of rain.

* Noon position.

These observations show that light to moderate winds obtained over the eastern half of the Bay except in the southern quadrant of the storm in the immediate neighbourhood of the Pegu coast, where violent gales, force 9 to 11, were blowing.

The *Lethington*, which was probably about 80 miles to the south-south-east of the centre, reported winds of almost hurricane violence (force 10 to 11).

The various observations when charted show that the centre was in approximately Lat. 16° N. and Long. 95½° E. at 8 A.M. or 170 miles to the north-by-east of its position same hour of the 5th. It had hence advanced at the average rate of 7 miles an hour.

7th May.—The storm had advanced along a northerly track during the previous 24 hours and at 8 A.M. of this day lay a little to the west of Yamethin. It had, however, filled up almost completely and was now a small residual disturbance of little importance.

The following gives 8 A.M. observations recorded at the observing stations in Lower and Central Burma:—

STATION.	PRESSURE. 8 A.M. reduced to sea level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches	
Moulmein .	29·728	+·111	—·090	WSW	9	10	4·07	Raining.
Rangoon .	·727	+·256	—·079	?	23	8	?	Severe gale.
Bassein .	·709	+·249	—·080	NE	11	6	5·20	
Diamond Island.	·720	+·234	—·086	WSW	20	7	0·08	Sea slight.
Toungoo .	·685	+·041	—·101	SSE	16	10	2·48	Dust-storm with rain.
Thayetmyo .	·665	—·017	—·105	S	8	5	0·41	
Minbu . .	·664	—·035	—·081	Calm	5	10	0·09	Showery.
Yamethin .	·649	—·027	—·115	SSE	4	10	0·45	

These observations establish that there was a very shallow residual depression lying in Central Burma. The air movement was feeble, as well as somewhat irregular, an indication that the cyclonic circulation had almost entirely broken up. Skies were more or less heavily clouded in Burma and heavy rain had been received in Lower Burma and Tenasserim and light rain in Central Burma.

Weather had moderated very rapidly over the Bay during the past day and was now fine with winds of force 1 to 5.

Pressure had fallen throughout India, thus emphasizing the deficiency in that area.

8th May.—The barometric changes of the previous 24 hours were generally small in amount except in Burma, where pressure had increased briskly and the residual disturbance had completely passed away. Cloud had decreased in Burma where only light rain had fallen.

The storm under discussion was remarkable in several respects, more especially in its unusually rapid formation and growth. It was, on the whole, the most severe storm that has visited Lower Burma in the first half of May during the past 25 or 30 years, and caused the total loss of the S.S. *Camorta* and the S.S. *Hermod*.

The following gives the probable positions of the storm centre on the 5th and 6th :—

Date.	Position of centre at 8 A.M.		Distance travelled during interval.	Average hourly rate of motion.
	Lat. N.	Long. E.		
	° ′	° ′	Miles.	Miles.
5th	14 0	94 50	...	...
6th	16 5	95 20	170	7

The storm is reported to have caused great damage to property and shipping at Rangoon.

Cyclonic storm of the 5th to the 14th in the Arabian Sea.

It has been already indicated that an advance of humid southerly winds was in progress over the north of the equatorial belt during the first three days of the month and also that the wind system prevailing over the area lying between the parallels of 4° S. and 12° N. was complex in character, consisting of north-east winds between Lat. 12° and 8° N., and southerly to westerly winds between the parallels of 4° N. and 4° S., with an intervening zone of light variable winds. In the meeting ground between these two opposite systems of air movement, a storm was developed with remarkable suddenness during the 24 hours preceding 8 A.M of the 5th, which formed the chief feature of the meteorology of the Arabian Sea during the next eight days.

The marine information received respecting this period is, however, unfortunately very limited, and hence the inferences regarding the origin, character, course and position of the storm given in the following discussion are necessarily more or less doubtful.

The following is a brief account of the storm based on the data available at the time of the preparation of this Review.

5th May.—The first indications of the for mation of the storm under discussion were afforded on this day by the observations recorded on board vessels in the north of the equatorial region and the south of the Arabian Sea. The following gives a summary of these observations :—

Name of Vessel.	8 A.M. Position.		Barometer (corrected.)	Wind.		Weather.
	Lat.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Umlazi* .	0 31S	66 15	29·835	W	2	Fine.
S.S. *Clan Mackay*	1 52S	60 20	·825	W	2	Smooth sea; 8 P.M. heavy rain showers.
S.S. *Safari* . .	3 42N	61 40	·835	SW	5 to 6	Squally and showery.
S.S. *Tagus* . .	5 07	58 35	·820	NW	3	Fine.
S.S. *City of Cambridge.*	9 48	64 15	·792	E	4	Cloudy; 4 A.M. showery.
S.S. *Clan Maclaren.*	9 57	61 58	·795	var.	5	Moderate sea and fine.
S.S. *Wildenfels* .	10 01	64 23	·816	E	3	
S.S. *Clan Maclean*	10 33	65 22	·827	NNW	1	Smooth sea; 8 P.M. passing showers.
S.S. *Braunfels* .	11 57	57 51	·784	ESE	1 to 2	
S.S. *Nevasa* . .	12 25	63 28	·829	var.	2	Fine.

The preceding data show that weather was cloudy with passing showers and light to fresh variable and easterly winds over the south of the Arabian Sea. It was showery and squally in the area through which the *Safari* was passing. The barometric and wind observations recorded on board the *Tagus*, *City of Cambridge*, *Clan Maclaren*, *Braunfels* and *Safari* indicate that a shallow depression lay over the area defined by these ships, the centre of which, so far as can be judged, was probably in about Lat. 6°35′ N. and Long. 62½° E. Normal northerly to north-westerly winds obtained along the Malabar Coast, and hence afforded no indication of the important changes taking place in the south of the Arabian Sea.

6th May.—Pressure had given way over the whole Indian area, but the fall was least in amount in the coast districts of Malabar and Konkan, an indication that the downward movement of the barometer was independent of the disturbance over the Arabian Sea and hence due to some more general action.

The following gives 8 A.M. observations recorded on

board ships navigating the region between the equator and the parallel of 12° N. on this day :—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer (corrected.)	WIND.		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Safari* . .	1 45	59 14	29·845	WNW	5 to 4	High sea and cloudy.
S.S. *City of Cambridge.*	9 02	68 39	·832	Calm	0	Fine.
S.S. *Wildenfels* .	9 12	68 35	·836	var.	1	
S.S. *Tagus* . .	9 20	62 22	·798	E	2	Fine.
S.S. *Clan Maclaren*	9 22	66 33	·805	E	2	Fine.
S.S. *Nevasa* .	9 52	59 12	·763	SE	4	Showery.
S.S. *Clan Maclean*	10 54	61 29	·817	var.	2	Passing showers; 8 P.M. passing rain squalls.
S.S. *Craftsman* .	11 05	56 28	...	ENE	4	Squally; 8 P.M. hard squalls and heavy rain.
S.S. *Braunfels* .	11 14	61 19	·804	E	2 to 3	

The observations establish that no large change had occurred, except in the area to the south and south-east of Socotra, where winds had shifted in the manner characteristic of the circulation round an area of low pressure. The whole of the information when charted indicates that a large low pressure area lay over the south-west of the Arabian Sea. The only vessels contributing data for this region were the *Craftsman*, *Tagus*, *Clan Maclean*, the *Braunfels* and *Nevasa*, but all these ships were on the northern and eastern limits of the depression. Their wind observations show that the centre of the depression was probably in Lat. 8⅓° N. and Long. 56¼° E. approximately.

Assuming this depression to have been the direct continuation of the disturbance which was central in Lat. 6½ N. and Long. 62⅓° E. on the previous day (an assumption which is confirmed by the wind observations recorded on board the *Tagus* during the 5th), its velocity during the previous 24 hours could not have been less than 18 miles an hour, a very unusual rate of movement for a storm in the early stages of its existence.

As there were no vessels within the central area of the storm it is not possible to determine its intensity.

7th May.—The observations recorded at the West Coast stations gave no indication of the storm in the Arabian Sea.

There were only seven vessels in the west and centre of the Arabian Sea. The meteorological information contained in their logs is given below :—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer (corrected.)	WIND.		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Nevasa* . .	7 14	56 35	29·770	SW	4	Rain squalls.
S.S. *Craftsman* .	10 31	60 55	...	S	4	Moderate sea and fine.
S.S. *Braunfels* .	10 35	65 04	·814	SW	1 to 2	
S.S. *Clan Maclean*	11 10	57 44	·697?	S	6	Heavy squalls of wind and rain; 4 P.M. very high sea.
S.S. *Tagus* . .	13 23	66 30	·772	NW	2	Fine.
S.S. *Peninsular* .	15 13	56 53	·779	SE	1	Cloudy.
S.S. *Methly Hall*	18 01	67 14	...	W	2	S. swell and fine.

All these vessels were some distance from the centre of the wind convergence or storm, but it is probable that the centre was in approximately Lat. 12° N. and Long. 55½° E., or about 270 miles to the north-north-west of its position on the previous day. The storm had hence begun to recurve.

The strongest winds experienced in the storm area were of force 6 on board the *Clan Maclean*, about 170 miles to the east-south-east of the centre. West to north-west winds prevailed in the centre of the Arabian Sea, an indication that the influence of the storm was confined to a small area.

8th May.—No significant change had occurred in the east of the Arabian Sea where normal north-west winds continued.

The observations recorded over the west of the Arabian Sea, on the other hand, although scanty, indicate clearly that the storm lying over that area on the previous day had intensified rapidly and was now a severe disturbance. Only four vessels contributed data for the west and centre of the sea on this day.

The following table gives the whole of the meteorological information contained in their logs :—

NAME OF VESSEL.	8 A.M. POSITION.		(corrected.) Barometer	WIND.		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Clan Maclean*	12 09	57 14	29·648	S	12	Tremendous cross sea, continual heavy rain; 4 A.M. cyclonic gale with terrific squalls of hurricane force.
S.S. *Soudan* . .	13 0	54 30	·672	N by W	8	High cross sea; hard squalls of wind and rain; 1 A.M. hurricane and terrific squalls at frequent intervals.
S.S. *Australia* .	13 35	50 34	·761	Calm	0	South-east swell and fine: 8 P.M. vivid lightning to south.
S.S. *Peninsular* .	16 27	62 29	·738	SSW	2	Fine.

The observations show that the storm covered practically the same portion of the sea as on the 7th, being central about Lat. 13° N. and Long. 56° E., or only about 90 miles to the north-north-east of its previous day's position. It had, however, developed considerably.

The *Clan Maclean* was probably about 100 miles to the east-south-east of the centre at 8 A.M., at which hour she experienced winds of hurricane violence and a tremendous cross sea. The *Soudan*, at a distance of about 110 miles to the west-by-north of the centre, had northerly gales, force 8, with hard squalls of wind and rain. This vessel, which was proceeding from Colombo to Suez, appears to have passed through the northern semi-circle of the storm. Her log is very interesting, as it shows clearly the rapid growth and slow movement of the storm during the previous day.

The following gives her log in full:—

Date and hour.	Name of vessel.	Position. Lat. N.	Position. Long. E.	Barometer corrected to sea-level and constant gravity. Lat. 45°.	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′	″			
7th Noon	S.S. *Soudan*.	12 8	58 3	...	...	4	
1 P.M. .	,,	...	...	...	SSE	..	
2 ,, .	,, .	...	...	...	SSE	4	Obscured.
3 ,, .	,, .	...	...	...	SSE	5	
4 ,, .	,, .	...	...	29·738	SE	5	Moderate to fresh wind and cloudy, ship lurching to considerable south-south-west sea and shipping water forward.
5 ,, .	,, .	...	...	...	SE	...	
6 ,, .	,, .	...	...	29·708	ESE	6	Overcast, with continuous rain, obscured.
7 ,, .	,, .	...	...	...	...	6	Moderate gale and overcast with continuous rain squalls, ship rolling to high sea from south by west.
8 ,, .	,, .	...	...	29·65	ESE	7	Wind shifted to east (unsteady) and increasing.
9 ,, .	,, .	...	...	29·614	E	8	
10 ,, .	,, .	...	...	29·421	ENE	8	
11 ,, .	,, .	...	...	29·314	...	9	Hove ship to with head north-east.
Midnight	,, .	...	...	29·281	NE	10	Whole gale with squalls of hurricane force and thick rain.
8th 1 A.M. .	,, .	...	...	29·266	NE	12	Hurricane, terrific squalls at frequent intervals with tremendous confused sea.
2 ,, .	,, .	...	...	29·117	NNE	12	
3 ,, .	,, .	...	...	29·067	NNE	12	Carried away one boat.
4 ,, .	S.S. *Soudan*.	...	...	29·216	N by E.	11	Stormy. Squalls of hurricane force with mountainous sea. 4·30 A.M. fierce gale and overcast with hard squalls of wind and rain at intervals and high cross sea. 4·50 A.M. barometer rising. Proceeded full speed, put ship on course.
5 ,, .	,, .	...	...	29·266	N by E.	11	
6 ,, .	,, .	...	...	...	N by W.	10	Weather moderating.
7 ,, .	,, .	...	...	29·565	N by W.	9	
8 ,, .	,, .	...	...	29·672	N by W.	8	Fresh gale and overcast with hard squalls of wind and rain. Ship rolling to high cross sea.
10 ,, .	,, .	...	...	29·742	N by W.	7	
11 ,, .	,, .	...	...	...	N	6	
Noon .	,, .	13 21	54 27	29·822	N	5	Fresh wind and squally, overcast, sea moderating, rain squalls at intervals.

The barometric readings given in the log are those of a mercurial barometer, which was found, when compared before the ship left port, to read only ·008″ higher than the Calcutta Standard Barometer. The lowest reading on board this vessel was recorded at 3 A.M. of the 8th and was 29·067″ or about ·67″ below the normal.

The *Clan Maclean* was in the southern half of the storm circle throughout the preceding day, and was proceeding very slowly north-eastwards.

The following gives in full the meteorological information contained in her log:—

Date and Hour.	Name of vessel.	8 A.M. position. Lat. N.	8 A.M. position. Long. E.	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′			
7th, 4 A.M. .	S. S. *Clan Maclean*	...	...	S	5	Moderate sea and overcast, slight south-west swell.
8 ,, .	,, .	11 10	57 44	S	6	Heavy squalls of wind and rain.
Noon .	,, .	11 13	57 07	S	7	High sea and overcast.
4 P.M. .	,, .	...	...	S	9	Labouring very heavily and shipping quantity of water.
8 ,, .	,, .	...	...	S	9	7 P.M. losing way and refusing to answer helm; 7·15 P.M. hauled ship to wind; wind and sea increasing.

DATE AND HOUR.	NAME OF VESSEL	8 A.M. POSITION. Lat. N.	Long. E.	WIND. Direction.	Force.	WEATHER.
		° ′	° ′			
Midnight .	S.S. *Clan Maclean*	...	...	S	9	Very heavy squalls and frequent flashes of lightning.
8th 4 A.M. .	,, .	...	...	S	12	Cyclonic gale with terrific squalls of hurricane force and tremendous cross sea.
8 ,, .	,, .	12 09	57 14	S	12	Continual heavy rain.
Noon .	,, .	12 20	57 15	S	12	Very heavy squalls of wind and rain.
4 P.M. .	,, .	...	...	SSW	12	Terrific squalls; blinding rain and very heavy sea.
8 ,, .	,, .	...	...	SSW	12	Heavy cyclonic gale with heavy cross sea and terrific squalls of wind and rain; decks flooded with heavy seas.
Midnight .	,, .	...	...	SSW	12	Do. do.

These observations confirm the inference drawn from the 8 A.M. data regarding the development and movement of the storm during the 24 hours preceding 8 A.M. of this day.

9th May.—Pressure had changed somewhat irregularly over the Indian land area during the previous 24 hours. The chief feature of the pressure conditions at this time was a large deficiency in Upper India, amounting to ·26″ at Dera Ismail Khan. The hot weather depression was hence deeper and considerably further north than usual in May. Conditions were normal on the West Coast and hence unaffected by the storm.

Weather was fine except in Bengal and Assam where thunderstorms had given moderate general rain during the previous 24 hours.

The marine information for the storm area in the Arabian Sea is even more limited for this than for previous days and is embodied in the following table:—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer (corrected.)	WIND. Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *City of Sparta*	11 58	51 50	29·745	S	4	Heavy south swell; 4 A.M. fine.
S.S. *Clan Maclean*	12 43	57 49	·683	SSW	12	Heavy terrific squalls of wind and rain; 4 A.M. continuous gale with terrific squalls and blinding rain.
S.S. *Australia* .	14 18	53 50	·741	NW	1 3	High confused sea and cloudy; 4 A.M. lightning to south-east.

These observations show that the storm had changed very little either in position or intensity. The centre of the disturbance, so far as can be judged from the meagre information available, was probably in Lat. 13½° N. and Long. 56½° E., and had hence travelled only 60 miles during the past 24 hours in a north-east direction.

The most interesting feature of the air movement in the area of the storm was the contrast between the intensity of the air movement in the eastern and western quadrants. Thus, while the *Clan Maclean*, which was about 100 miles to the east-south-east of the centre, experienced a hurricane, the *Australia* about 200 miles to the west-north-west experienced only light north-west winds of force 1 to 3, a consequence of the fact that in the eastern quadrant the winds were the ordinary winds of the season, intensified locally by the cyclonic indraught, while in the western quadrant they were winds deflected by the storm from their normal direction.

10th May.—Pressure had increased throughout India, rapidly in Upper India and slightly to briskly elsewhere. These changes had displaced the hot weather depression to its normal position in Upper Sind and the South-West Punjab and pressure was now only an eighth of an inch in defect in that area. The air movement in the west of the Peninsula and the east of the Arabian Sea was such as usually obtains during the hot weather period, and was hence independent of the storm in the Arabian Sea.

The following table gives 8 A.M. observations of this day taken on board vessels in the area covered by the storm:—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer (corrected.)	WIND. Direction.	Force.	WEATHER.
	′	° ′	″			
S.S. *City of Sparta*	11 00	56 31	29·775	SW	5	High sea.
S.S. *Mombassa* .	11 24	53 08	·784	SSW	5	Moderate sea.
S.S. *Marienfels* .	12 48	54 31	·787	var.	5	4 A.M. heavy squalls.
S.S. *Clan Maclean*	13 07	58 18	...	SW	7	Weather moderating.
S.S. *Etterick Dale*	13 32	51 28	·780	ESE	2	Moderate east swell and fine.
S.S. *Australia* .	14 50	56 25	·701	NNW	7	Overcast; 3 A.M. heavy rain squalls.

The observations are not sufficient to indicate the character of the storm on this day. They, however, appear to show that the storm centre was in about Lat. 15° N. and Long. 58° E. at 8 A.M., or about 140 miles to the north-east of its position on the 9th.

The winds experienced on board the *Etterick Dale* and *Marienfels* establish that the influence of the storm did not extend to any considerable distance from the centre.

11th May.—The general rise of pressure which commenced on the 10th had continued during the previous 24 hours and had again been greatest in Upper India. The hot weather depression had, in consequence of these changes, moved still further south and now covered Sind. A series of dust and thunderstorms with rain had occurred in the Punjab and caused a rapid reduction of temperature. Pressure was now normal in Sind and in large excess in the Punjab. There had been no change of

importance in the air movement over the east of the Arabian Sea and the neighbouring land area, and the land observations hence gave no indication whatever of the disturbed conditions in the Arabian Sea. The only vessel which was in the storm area on this day was the *Australia*. She was apparently about 180 miles to the south-west of the centre at 8 A.M. and experienced strong west-north-west winds with frequent rainsqualls. The wind observations of this vessel indicate that the centre was probably near Lat. 17¼° N. and Long. 60¼° E. The storm had thus advanced about 240 miles during the previous 24 hours, and was hence moving more rapidly.

12th May.—The pressure changes of the previous 24 hours were small and irregular and introduced no large change in the general distribution of pressure in the Indian land area. Ordinary local sea breezes were blowing across the Sind and Kathiawar Coasts and gave no intimation of the approach of the storm.

The vessels contributing marine information for this day were at considerable distances to the south and east of the storm and experienced only moderate to strong south-west winds. Under the circumstances, it is not possible to ascertain the position and character of the storm on this day, although it is, on the whole, probable that the centre of the cyclonic circulation was near Lat. 19½° N. and Long. 62° E. It had hence moved north-eastwards at an average rate of 9 miles an hour during the past day.

13th May.—Pressure had given way over the whole of Northern and Central India. The fall was most rapid in Sind and Kathiawar. Winds had changed to north-east at Kurrachee and were cyclonic in direction over the whole of the coast between that station and Veraval. Skies were overcast in Sind and over an inch of rain had fallen at Kurrachee. The land observations hence indicated that the storm in the Arabian Sea was now in the immediate neighbourhood of the Sind Coast.

The following gives these observations :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches.	
Veraval .	29·680	—·157	—·100	SW	1	5	...	Sea very rough.
Dwarka .	·599	—·199	...	SSW	32	9	0·01	Ditto
Bhuj . .	·597	—·180	—·124	SSW	21	10	...	Duststorm.
Rajkot .	·689	—·113	—·063	SSW	13	10	...	
Kurrachee .	·282	—·470	—·423	NE	12	10	1·21	
Hyderabad (Sind).	·601	—·084	—·053	E	11	9	...	Drizzling.

There were three vessels within the storm area on this day, *viz.*, the *Weissenfels*, *Indravati* and *Kilwa*. The following gives the whole of the information contained in their logs :—

Hour.	Name of Vessel.	8 A.M. Position.		Barometer corrected.	Wind.		Weather.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	″			
4 A.M.	S.S. Kilwa .	...	...	...	N	6	Rough sea with rain.
5-30	" .	...	...	...	N	8	
6-0	" .	...	...	...	NW	9	
7-0	" .	...	...	...	N	10	
8-40	" .	24 41	66 28	29·247	NE	10	High sea and cloudy.
9-0	" .	...	...	...	NW	10	
10-0	" .	...	...	...	NW	10	
11-0	" .	...	...	...	N by W	10	
Noon	" .	24 41	66 50	...	NW	9	Heavy sea and squally.
12th midnight.	S.S. Weisenfels.	...	...	29·540	SE	6	Lightning in all directions and heavy sea.
13th 1A.M.	"	...	...	...	...	7	Wind and sea still increasing 1-30 A.M., ship's head to south-west. The steamer lurching and pitching badly and shipped great quantities of sea water.
2 "	"	...	...	·420	S	7	
2-30 "	"	...	...	·350	...	8	
3 "	"	...	...	·270	...	9	
4 "	"	...	...	·220	SSE	10	Very heavy gale and tremendous high sea.
4-30 "	"	...	...	·200	...	...	Violent squalls with heavy rain.
5 "	"	...	...	·180	...	11	Shipped great columns of water.
5-30 "	"	...	...	·120	...	...	
6 "	"	...	...	·100	...	12	
6-30 "	"	...	...	·120	...	...	The wind suddenly shifted to south-west with heavy rain.
7 "	"	...	...	·170	SSW	10	
8 "	"	23 01	67 48	·230	SW	10	Thick rain and mountainous sea.
9 "	"	...	...	·310	...	10	Wind decreasing and tremendous high cross sea, weather became clear.
10 "	"	...	...	29·370	...	9	
11 "	"	...	...	·470	...	8	
Noon.	"	23 21	67 27	·500	WSW	7	Very confused sea.
1 P.M.	"	...	...	...	...	8	

HOUR.	NAME OF VESSEL.	8 A.M. POSITION.		Barometer corrected.	WIND.		WEATHER.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′				
2 P.M.	S. S. Weisenfels.	...	...	...	...	8	Weather and sea moderating gradually.
3 ,,	,,	...	...	...	...	8	
4 ,,	,,	...	...	29·520	WSW	8	During the storm, the ship's position was about 90 miles southward from Kurrachee.
5 ,,	,,	...	...	...	...	7	
6 ,,	,,	...	...	·620	...	6	
8 ,,	,,	...	...	·640	WSW	7	
Midnight.	,,	...	...	·670	W	4	
12th 6 P.M.	S. S. Indravati	...	...	·550	SW	...	
8 ,,	,,	...	...	·500	SW by S	...	Strong wind.
10·30	,,	...	...	·450	...	...	Wind very strong and very high sea.
Midnight.	,,	23 39	67 10	·350	...	...	Very high sea.
13th, 4 A.M.	,,	...	...	...	...	...	Ship damaged, lost a boat, railings and gangways washed overboard.
9 ,,	,,	...	...	28·150	...	...	

The *Weissenfels* was apparently nearest to the storm centre at 6 A.M. at which hour the corrected reading of her barometer was 29·1″. The centre of the storm was probably not more than 20 or 30 miles to the west of the vessel at that time. The fact that the wind on board increased from force 7 at 2 A.M. to hurricane violence at 6 A.M. proves that the storm, although intense, was of small magnitude.

The information furnished by the *Indravati* is extremely meagre. She was proceeding from Cutch Mandvi to Kurrachee and hence passed directly across the path of the storm. The barometric observations and the positions given in her log would appear to show that she passed through the central area about 9 A.M., just as the storm was crossing the coast. In the absence of confirmatory evidence, such as the strength of the wind and character of the weather, it is not possible to say how far the readings of her aneroid barometer are trustworthy. According to a comparison made by the marine clerk of the Bombay office, it was reading ·322″ too high. As aneroid barometers are usually somewhat unreliable, more especially during stormy weather, the very low reading recorded on board the *Indravati* can only be taken as showing that pressure was very low in the central area and probably below 28·5″.

The S.S. *Kilwa* was about 60 miles to the north-west of the centre at 8 A.M. and experienced a north-east gale, force 10, at that hour.

The marine information hence establishes conclusively that the storm was on the morning of this day of small extent and probably of exceptional intensity.

The land and sea observations when charted show that the storm centre was at 8 A.M. near Lat. 24° 10′ N. and Long. 67° E., or at a distance of about 500 miles to the north-east of its position at the same hour of the previous day. Its rate of motion had hence increased very rapidly during the previous day.

It is much to be regretted that no special observations of the storm were taken by the meteorological observers in Sind on this day.

A valuable series of observations recorded at the Manora station have, however, been kindly furnished by the Port Officer and is given below :—

Date and hour.	WIND.		
	Pressure reduced to sea level and constant gravity at Lat. 45°.	Direction.	Hourly velocity in miles.
12th, 11 P.M.	29·660	SE	8
Midnight	·650	ESE	14
13th, 1 A.M.	·630	E	19
2 A.M.	·580	ENE	26
3 ,,	·550	ENE	26
4 ,,	·520	ENE	34
5 ,,	·480	ENE	36
6 ,,	·400	ENE	58
7 ,,	·330	NE	60
8 ,,	·280	NNE	50
9 ,,	·190	NNE	45
10 ,,	·310	NNW	38
11 ,,	·400	NNW	35
Noon	·450	NNW	40
1 P.M.	·500	WNW	35
2 ,,	·540	WNW	22
3 ,,	·560	NW	20
4 ,,	·590	WNW	15

From the available information it would appear that the storm crossed the Sind Coast to the south-by-east of Kurrachee about 9 A.M., an inference which is fully borne out by the following statement of the Port Officer, Kurrachee :—

"From local observations it appeared to me that the storm passed over Keti about 70 miles south of this Port and travelled in a north-easterly direction".

The storm continued to march north-eastwards and passed into the Punjab by the morning of the 14th.

The following data define its position and character at 8 A.M. of the 14th:—

STATION.	PRESSURE.			WIND.				WEATHER.
	8 A.M., reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	
	"	"	"				Inch.	
Umballa	29·580	—·004	—·022	Calm	15	6	...	
Ludhiana	·553	—·046	—·069	Calm	3	6	...	
Sialkot	·551	—·029	—·074	ENE	4	8	...	
Rawalpindi	·621	+·011	—·031	WNW	4	10	...	
Delhi	29·609	—·005	—·025	W	4	0	...	Dusthaze.
Lahore	·551	—·047	—·067	Calm	3	10	...	
Peshawar	·642	—·052	—·044	NW	2	10	...	
Khushab	·593	—·047	—·008	S	6	10	...	
D. I. Khan	·618	—·036	—·020	Calm	2	10	...	Dusthaze.
Montgomery.	·553	—·079	—·043	N	7	10	...	
Mooltan	·595	—·040	—·030	NW	2	10	0·02	
Sirsa	·576	—·057	—·045	SW	6	0	...	Dusthaze.
Bikaner	·610	0	—·035	S	18	7	...	Duststorm.

These data establish that the storm now lay over the Punjab, and that its centre was to the south-west of Lahore, probably in Lat. 30½° N. and Long. 73¾° E. It had hence travelled over a distance of 660 miles in a north-easterly direction during the previous 24 hours.

The observations also show that the storm had filled up almost entirely and was now a very shallow and diffused depression.

The residual disturbance apparently advanced into the Western Himalayas during the day and broke up completely in that area by the morning of the 15th.

The following table gives the position and average rate of motion of the storm centre for each day of its existence from the 5th to the 14th:—

DATE.	POSITION OF CENTRE AT 8 A.M.		Distance travelled during interval.	Average hourly rate of motion.
	Lat. N.	Long. E.		
	° ′	° ′	Miles.	Miles.
5th	6 35	62 20	...	...
6th	8 20	56 15	445	18
7th	12 0	55 30	270	11
8th	13 0	56 5	90	4
9th	13 30	56 30	60	3
10th	14 55	57 55	140	6
11th	17 15	60 15	240	10
12th	19 20	62 10	210	9
13th	24 10	67 0	500	21
14th	30 45	73 50	660	27½

Summary of the chief features of the storm.—It has already been pointed out that the data at present available for the discussion of the storm are unusually scanty. So far as can be ascertained, the storm formed suddenly on the 4th in an area of light unsteady winds in the south of the Arabian Sea, about 700 miles to the west of the Maldive Islands. Light north-east winds obtained to the north of this area, and moderately strong south-west winds (due to the first temporary advance of the south-west monsoon current) over the north of the equatorial belt. It was in the intermediate belt between these two opposite systems of air motion that the storm was initiated as a shallow low pressure area. The depression thus formed apparently advanced very rapidly in a west-north-westerly direction during the 5th developing at the same time. It began to recurve slightly to north on the 6th and, as usually happens under these circumstances, its rate of motion decreased considerably. It was a fully developed storm on the morning of the 7th, when it lay about 70 miles to the east of Socotra. It continued to recurve slowly during the next three days, during which period its rate of motion averaged only 4 miles an hour. Its velocity increased again on the 10th, when the recurvature was complete, and thereafter the storm travelled in a north-easterly course with increasing velocity to the Central Punjab, where it broke up rapidly on the 14th. The causes of the recurvature of the storm can be only surmised. The available data tend to show that it was due, partly at least, to the absence of humid winds in the south-west of the Arabian Sea at this time. The barometric observations recorded within the storm area are unfortunately not sufficiently trustworthy to give an accurate idea of its intensity; but, so far as can be judged from the data of the *Soudan*, *Indravati*, and one or two other vessels, it is very probable that pressure was lower than 28·5 inches at the centre, and hence at least an inch and a quarter in defect of the normal. The storm, although of small extent, was undoubtedly a severe disturbance, and may have been a true cyclone with a calm centre.

The storm was hence characterized by its rapid formation, small extent, great intensity, large recurvature, very quick movement in the earlier and later stages of its existence and its almost complete disintegration on crossing the coast.

Some idea of the intensity of the storm may be formed from the fact, that the S.S. *Ehrenfels* of Bremen of 3,535 net tonnage, foundered in the cyclone on the 9th about 150 miles to the east of Socotra, and also that the *Clan Maclean*, which was involved in the storm from the 6th to the 10th, was "reduced to a helpless condition."

The following extract from a newspaper describes briefly the extent of the damage caused by the storm in the Kurrachee district:—

Reports are now being received from the outlying parts of the Kurrachee district that considerable loss of life and property was caused by the cyclonic storm on the 13th ultimo. Reliable information states that no less than 400 lives were lost in Tapo Babiho, Taluka Shahbunder, by the sudden rise of the river that day. These unfortunate persons, mostly cattle-owners belonging to the Jat tribe, were drowned in the river with all their belongings. In very few cases only were the dead bodies recovered, but the rest were all swept away by the force of the current into the sea. Many boat-owners, who managed to save their lives, reported themselves in a

perfectly destitute condition. The authorities are making arrangements to provide funds to relieve the sufferings of these unfortunate people. Mr. Barrow, the Collector, goes out on Monday on a visit to the Shahbunder division to see what measures can be devised for the relief of the distressed. In a letter to the "Sind Gazette" he appeals for funds for the relief of the destitute and sufferers, and says: "Incomplete as these reports are, they serve to establish the fact that a number of people lost their all, that grain stored up for future use has been scattered to the winds, seed lately sown has been washed out of the ground, standing crops and gardens have been destroyed, huts and sheds carried away, boats sunk or carried long distances inland, and these broken up or left useless as the water receded, water courses have become obliterated and cultivation rendered impracticable."

Weather was feebly disturbed in the Punjab on the 15th and 16th and numerous thundershowers occurred in that area, chiefly in the submontane districts. The pressure distribution was approximately normal on the 17th except in Bengal, Assam and Bihar where pressure was below normal to a moderate extent.

Pressure gave way locally over the Central Punjab on the 18th and a shallow depression lay over the West and Central Punjab on the morning of the 19th. The observations recorded at the Persian and Baluchistan stations indicate that it did not originate in those areas. It hence appears to have formed locally in the Punjab.

The depression intensified considerably during the next three days and on the morning of the 22nd was a fairly deep and well-defined disturbance. It diminished slightly in intensity on the 23rd and 24th during which period it was practically unchanged in position. A general fall of pressure occurred over the Indian region during the 24th, greatest in amount over the Punjab. The depression hence redeveloped and drifting eastwards passed into the South-East Punjab and the neighbouring districts of the United Provinces by the morning of the 26th. It apparently continued to drift eastwards during the day and disappeared in the Kumaon Himalayas.

Series of duststorms visited the Punjab during the existence of the disturbance and were in some cases accompanied with rain. Thunderstorms occurred in the hill districts of Upper India on the 26th and 27th.

Whilst this disturbance was breaking up in the Kumaon Himalayas another depression appeared in Sind and the South-West Punjab. It extended north-eastwards during the 27th and covered the whole of the Punjab and Upper Sind on the 28th. It apparently filled up in that area during the next thirty-six hours. It was a very diffused disturbance and exercised but little influence on the weather.

Weather was feebly unsettled with thunderstorms in North-East India in consequence of the formation of a feeble depression in the eastern districts of the Central Provinces and Chota Nagpur on the 28th. The depression filled up on the 29th and showers hence fell off in Bengal and were at the end of the month restricted to East and North Bengal.

The distribution of pressure was very abnormal at the close of the month, pressure being more or less in excess throughout the Indian region. The excess was most marked in Gujarat on the one side and in Bengal, Burma and the north of the Bay on the other. In consequence of these abnormal pressure conditions gradients were very feeble over the Indian seas, and there were no indications of an early advance of the monsoon currents over those areas.

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Hills west of Kohat.*—No snow fell on the Samana and other mountains on the Kohat border during the month.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Leh (Ladakh).*—Light falls of snow occurred at Leh on the 1st and 2nd. The snow melted rapidly and completely disappeared before the end of the month. There were occasional falls on the surrounding hills, but they were not heavy. Hail fell occasionally during the remainder of the month.

The weather was very variable, though on the whole colder and wetter than usual.

(2) *Simla Hill Districts.*—Light snow fell on the 1st, 11th, 12th, 15th, 25th, 26th and 27th. The snow line descended to 10,000 feet on the 26th. The depth of snow at the end of the month on the Rupin, Borenda, Harang and Bulder passes was between seven and nine feet.

(3) *Kulu.*—Rain fell on the 11th, 12th, 13th, 15th 16th, 19th, 22nd, 24th, 26th and 27th in the Kulu tahsil, and on the 2nd, 3rd, 11th, 12th, 15th, 16th, 22nd, 26th, 27th and 28th in the Plach tahsil. Light snow fell on these occasions on the higher peaks and passes of the sub-division.

The rainfall of the month was abundant throughout the whole sub-division.

All the passes were open for foot traffic by the end of the month.

The following gives the depth of snow accumulation on the various passes and peaks of the sub-division at the end of the month :—

Kulu Tahsil.		*Plach Tahsil.*	
Rotang . .	5 feet.	Srikhand .	3 feet.
Hamta . .	1 foot.	Gargarasan .	1 foot.
Chandar Khani	2 feet.	Tirath . .	1 „
Barsai . .	¼ foot.		
Bujadhar .	1¼ feet.		
Sari . .	2 „		

The snowfall of the month was the same in amount as in the corresponding period of last year.

III.—UNITED PROVINCES HIMALAYAS.

(1) *Almora District.*—The following report has been received from the Deputy Commissioner of Almora:—

Malla Johar.—Snow fell as under:—

	′	″
10th May	2	0
14th „	2	0
25th „	2	0
26th „	2	0
Total	8	0

This was the depth of snow on the peak of Utadhurá.

Malla Danpur:—

	′	″
1st May 1902	0	6
6th and 7th May	0	6
Total	1	0

This was the depth of snow on the peaks of Pindari, Kaphini and Kantela.

Byans, Chandans and Darma:—

	′	″
13th May 1902	1	0
21st „	0	6
Total	1	6

The fall is said to be less than in previous years in Malla Johar and above normal in Danpur, Byans, Chandans and Darma.

(2) *Garhwal.*—There were some unimportant falls of snow during the month in the region of perpetual snow on the 1st and 18th. The falls were on both occasions light. The Mana and Niti passes were open for traffic.

Summary of the snowfall data of the cold weather season, 1901-1902.—The following summary is taken from a memorandum on the meteorology of the cold weather season, 1901-1902, prepared by the Meteorological Reporter to the Government of India for the information of Government.

(1) The snowfall in the Afghan mountain districts during the past cold weather was probably unprecedentedly light. From Wana, Kurram, Kabul, Kila Drosh and Chitral comes the same report of unusually light snowfall and in several of these areas the weather was also reported to have been unusually mild. No snow fell on the Samana Range and on the hills west of Kohat throughout the seasons.

(2) On the Murree hills no snow fell throughout the season, while in Kashmir the falls were much below normal from December 1901 to February 1902 and about normal or in slight excess in March and April 1902. At Leh light falls of snow occurred at moderately frequent intervals throughout the season, but the accumulation at the end of the season was probably less than usual. In Lahoul the season was unusually mild and the precipitation so light that fears were entertained for the pasturage. In the Simla hill districts the snowfall was considered to be much below average notwithstanding the fact that more snow than usual fell in April on elevations above 10,000 feet.

(3) In the Upper Sutlej Valley the falls were exceptionally light till the beginning of March. Heavy falls were reported in March and April which brought the accumulation of snow up to that of an ordinary winter. In Chamba and Kulu the accumulations at the end of the season were considered to be exceptionally light.

(4) In Garhwal and the greater part of Kumaon the snowfall was considered to be much lighter than usual.

(5) In Assam and Upper Burma, according to the scanty information available, the snowfall seems to have been slightly less than usual except on the hills to the north and east of Sadiya, where it was reported to have been larger this year than last.

(6) In Persia, the data on the whole indicate less precipitation than usual, except at Teheran, Ispahan and Meshed where the falls were about normal.

(7) The precipitation in the outer ranges of the Himalayas was, on the mean of the season, in moderate to considerable defect, the deficiency being most marked and very considerable during January and February. The falls during December, March and April were about normal.

The above data, therefore, show that the precipitation on the hills bordering India on the north and west was for the most part much below normal.

(8) The snowfall was more or less largely below the normal in December, January and February. In March and April, on the other hand, weather was somewhat more disturbed than usual and frequent falls of snow occurred in the Punjab and Kashmir Himalayas, thus prolonging the winter somewhat beyond its normal limit. The falls were, however, restricted mainly to the higher ranges. It is hence almost certain that there is at the present time no abnormal extension of the snowclad surface and the snowfall conditions are, therefore, not likely to exercise any marked adverse influence on the strength and extension of the monsoon currents.

Summary of Special Storm Reports.

The following statement gives the chief local storms of which reports were received during the month. All these storms, with the exception of two, *viz.*, the hailstorm at Musafirkhana on the 27th and the tornado at Jessore on the 21st, were of slight to moderate intensity and do not appear to have done much damage to property. They were most frequent on the 2nd, 3rd, 10th, 11th, 22nd and 26th:—

May 1st.—Duststorm at Srinagar from 4-30 P.M. to 5 P.M.

„ *2nd.*—Severe duststorm at Hoshangabad. It came from north-east and lasted 10 minutes.

May 2nd.—Violent duststorm at Allahabad from 5-10 P.M. to 5-50 P.M. It came from north-west. The strongest winds experienced during the storm were of velocity 25 miles per hour.

Thunderstorm with rain at Simla from north between 4 P.M. and 5-30 P.M. Temperature fell from 66° at 4 P.M. to 49° at 5 P.M. The greatest velocity of the wind was 25 miles per hour.

" *3rd.*—Violent duststorm at Hoshangabad from 4-4 P.M. to 4-19 P.M.

Duststorm at Khandwa at 6 P.M.

Violent nor'wester at Burdwan from 8 P.M. to 10 P.M. 1'30 inches rain fell during the storm. Slight damage was inflicted on property.

Violent nor'wester at Chanda in the afternoon.

Duststorm with rain at Raipur at 4-10 P.M.

" *7th.*—Duststorm at Agra at 10 P.M.

Severe duststorm at Hoshangabad from 5-10 P.M. to 5-25 P.M.

Duststorm at Saugor from north-west between 9 A.M. and 10 A.M.

" *8th.*—Violent duststorm at Mymensingh at 2 P.M. It came from north and lasted till 3 P.M.

Duststorm at Jodhpur at 8-40 P.M.

Hailstorm at Ajmer from 4 P.M. to 4-25 P.M. The largest stones were about an ounce in weight.

" *9th.*—Severe duststorm at Hoshangabad from 4 A.M. to 4-20 A.M. It was followed by a second storm at 5-20 P.M.

Thunderstorm at Khandwa at midnight.

" *10th*—Duststorm at Srinagar at 2 P.M. It came from north-west.

Severe thunderstorm at Lahore between 10 P.M. and midnight. Pressure increased about ·15″ during this interval.

Duststorm at Hoshangabad lasting from 6 P.M. to 6-20 P.M.

Duststorm at Pachmarhi at 8-9 P.M.

" *11th.*—Duststorm with rain at Hoshangabad at 1-20 P.M. It came from north-east.

Thunderstorm at Srinagar from 9 P.M. to 10-30 P.M.

Violent duststorm at Allahabad at 1-30 A.M. The storm is thus described in the *Pioneer* newspaper:—

"It is a good many years since Allahabad was visited by such a violent storm as broke over the district about 1-30 A.M. on Sunday morning. The storm began with a high wind which rapidly increased to a violent gale and was accompanied by whirling clouds of dust. This was followed by a very heavy downpour of rain with thunder, and vivid lightning; a considerable amount of damage was done."

Duststorm with rain at Jaipur at 7-30 P.M. Winds blew at the rate of 38 miles per hour between 7-50 and 7-55 P.M.

May 14th.—Duststorm at Ludhiana from 2-30 to 3 P.M. Duststorm at Jodhpur at 4-7 A.M. It came from south-west. Wind blew at the rate of 32 miles an hour from 5-20 to 5-35 A.M.

" *15th.*—Thunderstorm with hail at Ootacamund between 3-30 P.M. and 3-50 P.M.

Severe thunderstorm at Wellington at 1 P.M.

" *19th.*—Duststorm at Hoshangabad at 11 P.M. It came from north-east and lasted about 15 minutes.

Severe thunderstrom at Ootacamund at midnight. The strongest winds blew at the rate of 30 miles an hour and uprooted some trees.

" *20th.*—Duststorm at Hoshangabad at 1-20 P.M.

" *21st.*—Duststorm at Pachmarhi in the forenoon.

Thunderstorm at Simla from 1-30 P.M. to 3-30 P.M.

Severe tornado at Jessore from 3-30 P.M. to 3-45 P.M. Some *kutcha* houses and trees were blown down.

" *22nd.*—Severe nor'wester with rain at Mymensingh at night.

Violent thunderstorm at Jessore at 11-45 A.M. It lasted about an hour and caused much damage to property.

Thunderstorm at Gulmarg in Kashmir at 2 P.M.

Thunderstorm at Srinagar at 4-20 P.M.

" *23rd.*—Thunderstorm at Gulmarg from 1 A.M. to 9 A.M. Hail fell for five minutes at 8-30 A.M.

" *24th.*—Duststorm at Saugor at 4-45 P.M.

" *25th.*—Thunderstorm at Gulmarg from 10 A.M. to 9 P.M. There were occasional showers of hail during this period.

" *26th.*—Thunderstorm at Simla from 7-20 A.M. to 9-30 A.M. followed by a second storm between 10-30 A.M. and 11-30 A.M.

Thunderstorm at Allahabad from south-west between 2-45 P.M. and 3-35 P.M.

Thunderstorm at Gulmarg from 4 to 7 P.M.

Severe hailstorm at Mussooree at 10 A.M. The hailstones were of the size of a pigeon's egg.

" *27th.*—Thunderstorm at Gulmarg at 4 P.M.

" *28th.*—Duststorm at Khandwa at 3-35 P.M. It came from north-west and lasted about 10 minutes.

" *29th.*—Duststorm with rain at Poona from 4-16 to 4-40 P.M. The strong winds accompanying the storm blew down several trees in the station.

Violent duststorm at Pachmarhi in the afternoon.

" *30th.*—Severe nor'wester with rain at Mymensingh from 3-30 to 4-20 P.M.

" *31st*—Severe nor'wester at Mymensingh at 2-40 P.M.

The following hailstorms are reported by district authorities:—

May 1st.—Hailstorm in sixty villages of the Roha tahsil of the Kamrup district (Assam). It came from north-west and lasted about 10 minutes. The largest stones were of the size of an ordinary pomegranate fruit. The stones damaged the standing crops in several villages.

Hailstorm in the Dharwar district over an area of about 32 square miles.

,, *2nd.*—Hailstorm at Pokhliajhar in the Bhopawar Agency. It lasted for half an hour. The hailstones were small in size.

,, *3rd.*—Hailstorm in a part of the Dhar State (Bhopawar Agency). The hailstones were of the size of a gram.

Hailstorm at Pokhliajhar in the Bhopawar Agency at about 2 P.M. The hailstones were of the size of a betelnut.

,, *5th.*—Hailstorm at Palakonda (Vizagapatam district). It began at 4 P.M. The hailstones were of the size of a tamarind seed.

Hailstorm at Dambal in the taluka Gadag of the Dharwar district. It came from north and lasted from 8 P.M. to 8-17 P.M. The hailstones were about half an inch in diameter.

,, *9th.*—Hailstorm at Badnawar in the Bhopawar Agency in the early morning.

,, *11th.*—Hailstorm at Parwatipur in the Vizagapatam district from 6 P.M. to 6-30 P.M. The largest hailstones were about an inch in circumference.

,, *13th.*—Hailstorm at Narsapatam in the district of Vizagapatam at 4 P.M. The largest hailstones were of the size of an ordinary marble.

,, *14th.*—Hailstorm at Narsapatam from 4-30 P.M. to 4-42 P.M.

,, *20th.*—Hailstorm at Dharwar, from 3-15 P.M. to 3-55 P.M. The biggest stones measured about three-quarters of an inch in diameter.

Hailstorm in the Dharwar sub-division between 4-30 P.M. and 6 P.M. It affected an area of about 54 square miles. The largest hailstones were about half an inch in diameter.

May 21st.—Hailstorm over an area of about 50 square miles in the taluka Ranebennur of the Dharwar Collectorate It began at 8-40 P.M. and lasted about 10 minutes. The largest hailstones measured about half an inch in diameter.

,, *27th.*—According to a newspaper report a severe storm occurred at Musafirkhana in the Sultanpur district between 5 and 6 P.M. "Some of the hailstones were of an extraordinarily large size, quite as big as cricket balls and the majority were the size of fowl's and pigeon's eggs. The mango crop in this locality was phenomenally good, and this has been quite ruined along the pathway of the storm which extended for six or seven miles east of Musafirkhana along the Benares-Lucknow road. The storm was accompanied by a regular tornado of wind, which wrought great havoc among the trees. Many a majestic *mohwa* and mango, that had weathered a hundred storms and was a land mark for the surrounding country, lies prone on the ground, and the fine avenue of trees lining the Benares-Lucknow road is a sad sight, for hardly a tree has escaped some casualty. People who were unfortunately out in the open when the storm burst were badly bruised by the hail, and many have had their heads cut open, but I have not so far heard of any fatalities."

The following reports of earthquakes have been received:—

May 26th.—A feeble earthquake shock was experienced at Gulmarg at 6-10 A.M. The tremor apparently passed from east to west and lasted for about 10 seconds.

,, *28th and 29th.*—A slight shock of earthquake was felt at Rangoon at 4-15 P.M. on the 28th followed by another at 9-20 A.M. of the 29th and three others in quick succession at 10-15 A.M. of the same day.

Brief Summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—The most important feature of the meteorology of the first half of the month in this area was a cyclonic storm which formed in the extreme south of the sea on the 4th and advancing along a curved path during the next eight days struck the Sind Coast to the south-south-east of Kurrachee on the morning of the 13th. The circumstances of the origin, development and advance of the storm have been fully given in the section "Barometric Depressions, etc.," and need not be repeated. The storm was probably a concentrated disturbance of great intensity and caused very stormy weather over the narrow strip of sea affected by it during its progress towards the Sind Coast. Winds of hurricane violence were experienced dy the S.S. *Clan Maclean, Soudan,* and one or two other vessels.

Winds were approximately normal in direction and inten-

sity during the second fortnight of the month over the northern half of the sea, but were exceedingly light and irregular over the southern half, where in years of ordinary conditions west to south-west winds obtain during that period.

The daily air movement ranged between an average of 2·2 on the 19th and 3·7 on the 9th and was more or less below its normal intensity on no less than 25 days during the month. It averaged 3·0 in strength on the mean of the month, the normal for the period being 3·4.

Bay of Bengal.—During the first three days of the month abnormal northerly winds due to excessive pressure in North-Eastern India obtained along the Arakan and Pegu Coasts, while an advance of southerly winds was in progress over the centre and south-east of the Bay. The interaction between these two opposite air currents initiated a cyclonic whirl to the north of the Andamans on the 4th. The storm, thus generated, intensified on the 5th and advancing in a north-by-east direction passed into Lower Burma on the morning of the 6th. It was a disturbance of considerable intensity and occasioned very disturbed weather over the Andaman Sea, several vessels experiencing winds of force 8 to 12, much rain and a high confused sea.

The air movement over the Bay increased from an average of 2·5 on the 4th to 4·9 on the 6th, but fell off very rapidly after the storm passed inland and was only very slightly above its normal strength on the morning of the 7th. The air movement was of about normal intensity during the next five days but increased considerably again during the 12th and was from 20 to 30 per cent. stronger than usual during nearly the whole of the remainder of the month. Except along the coasts, where they were somewhat unsteady, the winds over the Bay were practically normal in direction during this period.

Equatorial Belt.—The data for the western half of the belt indicate that the South-East Trades were neither so steady nor so vigorous as usual in May. Towards the end of the month there were, however, feeble indications of a favourable change. The winds were, on the mean of the month, slightly more southerly than usual at Zanzibar, an indication that there was no deflection of the South-East Trades current to East Africa.

Temperature of the Air.

The month under review was characterized by somewhat higher temperature than usual over the whole of the country with the exception of North-Eastern India, Upper Burma, Tenasserim and the South-East Punjab. The hot weather conditions were hence more strongly marked than usual over the greater part of the Indian region and as usually happens under these conditions the night temperature was as largely in excess as the day temperature.

The mean maximum or day temperature of the month was below the normal in Lower and Upper Burma, Assam, Bengal, the United Provinces and the South-East Punjab, and was in excess over the remainder of the country. The deficiency was small except in Bengal and locally at one or two stations in Burma and the South-East Punjab where it ranged between 2° and 5°.

The following gives data for the stations at which the negative variations exceeded 2·5° in amount:—

Station.	Mean maximum temperature.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
	°	°	°
Chaibassa	100·2	105·1	−4·9
Burdwan	93·6	98·4	−4·8
Jessore	91·8	94·8	−3·0
Toungoo	92·8	95·7	−2·9
Bhamo	91·0	93·7	−2·7
Balasore	95·0	97·6	−2·6

The positive variations also were generally slight, exceeding 2° only in the West and North Punjab, Upper Sind, the Central and West Deccan and a part of Central Burma and of Malabar.

The following gives data for the stations at which the excess was greatest:—

Province or Area.	Station.	Mean maximum temperature.		
		Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
		°	°	°
North Punjab	Peshawar	102·7	98·6	+4·1
	Rawalpindi	101·5	98·1	+3·4
Upper Sind	Jacobabad	115·1	111·6	+3·5
Khandesh	Ahmednagar	102·8	99·4	+3·4
Central Deccan	Secunderabad	107·1	103·9	+3·2

The area of greatest excess of day temperature hence included the North Punjab and Upper Sind.

The highest day temperatures of the month in Upper India were generally recorded during the last ten days of the month. They were, however, in no way remarkable, being in most cases considerably lower than the highest previously on record.

The following table gives the highest maximum tem-

peratures (exceeding 115°) registered in India during the month :—

STATION.	Highest maximum temperature recorded in May 1902.	Date on which recorded.	Highest maximum temperature recorded in May previous to 1902.	Year in which recorded.
	°		°	
Jacobabad . . .	122·5	22nd	123·0	1888, 1895, 1898 & 1901.
Mooltan . . .	117·0	7th and 31st.	120·5	1895
Pachpadra . . .	116·5	6th	123·1	1886
Dera Ismail Khan .	116·2	22nd	119·5	1892
Montgomery . .	115·5	7th	121·9	1895
Ahmedabad . . .	115·4	6th	114·3	1895
Deesa	115·1	,,	118·6	1886

The variations of the mean minimum or night temperature were generally similar in character to those of the day temperature.

The mean night temperature was in slight defect over Bengal, Chota Nagpur, East and North Bihar, Upper Burma and at one or two stations in South India.

The deficiency was greatest at Chaibassa (—2°·7), Barisal (—1°·9), Bogra (—1°·8) and Jessore (—1°·5) which hence define the region of largest defect of night temperature during the month. The night temperature was in slight to considerable excess over the rest of the country, the excess being over 2° in amount in six small areas shown in Plate III at the end of the Review.

The following table gives data for the stations in these areas at which the excess was above 2·5°, and which hence indicate the region in which the night temperature was in greatest excess :—

PROVINCE OR AREA.	STATION.	MEAN MINIMUM TEMPERATURE. Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
		°	°	°
PUNJAB . .	Lahore . . .	77·1	72·6	+4·5
	Sialkot . . .	78·9	74·8	+4·1
	Mooltan . . .	81·6	77·6	+4·0
	Rawalpindi . .	71·6	68·6	+3·0
	Peshawar . . .	72·7	70·0	+2·7
UNITED PROVINCES	Jhansi . . .	87·1	83·6	+3·5?
CENTRAL PROVINCES.	Saugor . . .	81·3	78·5	+2·8
	Nagpur . . .	84·7	81·9	+2·8
BERAR . .	Amraoti . . .	82·6	80·0	+2·6
DECCAN . .	Hyderabad . .	83·1	78·6	+4·5
	Secunderabad . .	81·8	78·6	+3·2
	Sholapur . . .	79·3	76·5	+2·8
	Gulbarga . . .	81·1	78·5	+2·6

The mean daily temperature of the month was either normal or in defect in Burma, Assam, Bengal, Orissa, Chota Nagpur, the submontane districts of Bihar and of the United Provinces and the South-East Punjab. The following gives mean temperature data for the stations in this area at which the deficiency was more than 2° in amount :—

PROVINCE OR AREA.	STATION.	MEAN DAILY TEMPERATURE. Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902
		°	°	°
CHOTA NAGPUR .	Chaibassa . .	88·8	92·6	—3·8
BENGAL . . .	Burdwan . . .	85·2	88·2	—3·0
	Jessore . . .	83·6	85·9	—2·3
	Barisal . . .	82·5	84·7	—2·2
	Bogra . . .	81·4	83·6	—2·2

The mean temperature was more or less above the normal over the remainder of the Indian area, particularly over the North and West Punjab, Upper Sind, Hyderabad, a part of the West Deccan and the south-eastern districts of the Central Provinces where it was from 2° to 3½° in excess. The following table gives comparative data for stations in these areas at which the excess was above 3° :—

PROVINCE OR AREA.	STATION.	MEAN DAILY TEMPERATURE. Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
		°	°	°
PUNJAB . . .	Peshawar . . .	87·7	84·3	+3·4
	Mooltan . . .	95·5	92·1	+3·4
	Rawalpindi . .	86·5	83·4	+3·2
	Sialkot . . .	92·1	89·0	+3·1
HYDERABAD . .	Hyderabad . .	94·5	91·2	+3·3
	Secunderabad . .	94·5	91·3	+3·2

The mean temperature of the month was practically normal in Baluchistan and at the hill stations in Northern

India. The following gives data for seven representative stations:—

STATION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, May 1902.	Mean minimum temperature, May 1902.	Mean daily temperature, May 1902.
	°	°	°
Quetta	+3·3	−0·2	+1·6
Gilgit	−0·1	−0·5	−0·3
Leh	−1·8	+0·3	−0·8
Srinagar	+1·6	+0·8	+1·2
Murree	+0·5	−0·7	−0·1
Chakrata	−2·4	+0·8	−0·8
Darjeeling	−0·1	−1·2	−0·7

Temperature was, so far as is indicated by the data of Kabul, in slight excess in Afghanistan. The variations were very small in the plateau of Iran, thus indicating the prevalence of normal temperature conditions.

The following summarizes the chief features of the temperature conditions of the month:—

(*a*) Diminished temperature, both by day and night, over the greater part of North-Eastern India and Burma. The deficiency was most pronounced in Bengal, where at several stations the mean temperature of the month was from 2° to 4° below the normal.

(*b*) Slightly decreased temperature by day and very slightly increased temperature by night in the South-East Punjab and the neighbouring districts of the United Provinces. The mean temperature was consequently in slight defect in these areas.

(*c*) Increased temperature over the remainder of the country. The excess was as large in the day as in the night temperature, and was on the whole greatest in the North and West Punjab and Hyderabad. The mean temperature of the month was 3°·4 above the normal at Peshawar and Mooltan and 3°·3 at Hyderabad.

(*d*) The temperature conditions were approximately normal at the hill stations in Northern India and in the highlands of Baluchistan and Persia. Temperature was apparently somewhat higher than usual in Afghanistan (represented by Kabul).

The following table gives mean temperature data of the month for the 56 meteorological divisions into which India is divided:—

PROVINCE.	DIVISION.	ACTUAL TEMPERATURE.					VARIATION FROM NORMAL OF MONTH OF		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
BURMA	Tenasserim	87·4	76·2	81·9	11·2	23·5	−1·5	+0·5	−2·0
	Lower Burma (Deltaic)	90·6	78·4	84·5	12·2	25·6	−1·0	+0·7	−1·7
	Central do.	95·6	77·5	86·6	18·2	32·3	0	+1·3	−1·3
	Upper do.	96·5	76·0	86·3	20·5	34·1	+0·4	0	+0·4
	Arakan	88·9	77·7	83·3	11·2	21·4	−1·7	−0·5	−1·2
BENGAL AND ASSAM	Eastern Bengal	88·4	74·4	81·4	14·0	26·1	−1·8	−0·9	−0·9
	Assam (Surma)	88·4	73·5	81·0	14·9	27·2	−0·3?	+1·0?	−1·3?
	Do. (Brahmaputra)	85·7	72·0	78·9	13·7	27·3	−0·4	−0·2	−0·2
	Deltaic Bengal	92·4	76·4	84·4	16·0	28·8	−1·8	−0·9	−0·9
	Central do.	93·8	75·5	84·7	18·3	35·8	−3·1	−1·2	−1·9
	North do.	88·4	72·6	80·5	15·8	28·6	−1·1	−0·7	−0·4
	Bengal Hills	60·9	45·3	53·1	15·6	28·9	−0·1	−1·2	+1·1
	Orissa	93·9	79·5	86·7	14·4	28·0	−1·5	−0·2	−1·3
	Chota Nagpur	100·9	76·8	88·9	24·1	41·6	−2·2	−1·5	−0·7
	South Bihar	102·6	79·5	91·1	23·1	39·6	−0·5	+0·9	−1·4
	North do.	95·7	76·0	85·8	19·8	37·0	−2·1	−0·2	−1·9
UNITED PROVINCES OF AGRA AND OUDH.	United Provinces (East)	106·3	80·2	93·2	26·1	42·5	0	+1·0	−1·0
	Oudh (South)	104·4	79·2	91·8	25·2	44·5	−0·6	+1·4	−2·0
	Do. (North)	101·2	78·5	89·9	22·7	40·2	−1·8	+0·5	−2·3
	United Provinces (Central)	107·7	82·5	95·1	25·2	38·8	0	+0·2	−0.2
	Do. do. (West)	105·2	80·1	92·7	25·1	37·3	+0·1	+1·4	−1·3
	Do. do. (Submontane, East).	99·3	77·1	88·2	22·2	40·2	−1·7	−0·2	−1·5
	Do. do. (Submontane, West).	99·7	75·0	87·4	24·7	39·3	−0·6	+1·2	−1·8
	Do. do. (Hills)	75·8	58·4	67·2	17·4	33·7	−1·0	+1·0	−2·0

Province.	Division.	Actual temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of month of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Punjab and N.-W. F. Province.	Punjab (South-East)	104·5	81·7	93·1	22·8	41·1	−0·2	+1·5	−1·7
	Do. (South)	103·7	77·8	90·7	25·9	44·2	−1·8	+1·6	−3·4
	Do. (Central)	105·7	77·1	91·4	28·6	47·0	0	+4·5	−4·5
	Do. (Submontane)	103·5	76·9	90·3	26·6	44·2	−0·2	+3·2	−3·4
	Do. (Hills)	76·7	53·2	65·0	23·5	43·6	−0·1	+0·2	−0·3
	Do. (North)	102·1	72·2	87·2	30·0	51·2	+3·8	+2·9	+0·9
	Do. (West)	107·3	78·5	92·9	28·9	48·5	+2·4	+2·0	+0·4
Bombay and Malabar Coast Districts (Madras).	Malabar	90·8	79·0	84·9	11·8	19·1	+1·6	+0·9	+0·7
	Madras (South Central)	97·4	74·9	86·2	22·5	32·9	+0·3	+0·3	0
	Coorg	81·4	64·5	73·0	16·9	23·9	+1·1	−0·4	+1·5
	Mysore	92·6	69·9	81·2	22·7	33·4	+1·4	+0·8	+0·6
	Konkan	91·1	82·2	86·7	8·9	14·5	+1·4	+1·9	−0·5
	Bombay Deccan	101·4	74·0	87·7	27·4	35·1	+2·1	+1·2	+0·9
	Hyderabad (North)	105·4	79·4	92·4	26·1	35·9	...	...	...
	Khandesh	104·6	74·8	89·8	29·8	38·9	+2·9	+1·4	+1·5
Central Provinces and Berar.	Berar	109·3	82·9	96·1	26·4	36·8	+1·6	+2·3	−0·7
	Central Provinces (West)	109·2	83·0	96·1	26·2	39·5	+1·4	+1·9	−0·5
	Do. (Central)	107·4	80·5	93·9	26·9	40·5	+1·3	+1·4	−0·1
	Do. (East)	108·8	83·7	96·3	25·1	41·5	+1·7	+1·9	−0·2
Bombay (North).	Gujarat	103·1	80·6	91·8	22·5	33·0	+0·4	+1·8	−1·4
	Kathiawar and Cutch	98·0	78·7	88·4	19·3	29·1	+0·2	+1·2	−1·0
	Sind	105·1	80·2	92·7	24·9	46·9	+1·3	+1·8	−0·5
	Baluchistan Hills	89·9	52·8	71·4	37·1	53·8	+2·1	−0·9	+3·0
Rajputana and Central India.	Central India (East)	105·8	79·9	92·9	25·9	38·6	+0·6	+1·6	−1·0
	Rajputana (East), Central India (West)	106·3	81·0	93·7	25·3	41·0	+0·5	+0·9	−0·4
	Do. (West)	108·0	81·1	94·6	26·8	46·1	+1·2	+1·6	−0·4
Madras	East Coast (North)	95·1	81·8	88·5	13·4	25·9	0	0	0
	Hyderabad (South)	106·5	82·3	94·4	24·2	36·2	+2·3	+3·0	−0·7
	Madras (Central)	106·5	81·9	94·2	24·6	39·1	+2·0	+1·2	+0·8
	East Coast (Central)	104·7	82·7	93·8	22·0	35·2	+1·7	+0·9	+0·8
	Do. (South)	101·3	80·3	90·8	21·0	31·6	+1·5	+1·1	+0·4
	Madras (South)	99·0	78·5	88·2	20·5	26·9	+1·6	+1·5	+0·1

The following is a brief statement of the more important temperature changes during the month over the land area of India:—

At the commencement of the month temperature was higher than usual over the whole of the country with the exception of Assam, Bengal and the Madras Coast. The excess was most pronounced in Rajputana and the western half of the United Provinces, over the greater part of which areas it varied between 3° and 6½°.

The following variation data for the 24 hours preceding 8 A.M. of the 1st illustrate the temperature conditions prevailing at this time:—

Province or Division.	Variation from normal of Mean maximum temperature, 1st May.	Mean minimum temperature, 1st May.	Mean daily temperature, 1st May.
	°	°	°
Burma	+2·6	+0·8	+1·7
Assam	−3·8	−1·6	−2·7
Bengal	−2·3	+1·1	−0·6
Orissa	−0·6	+1·0	+0·2
Bihar	+0·8	+1·3	+1·1

Province or Division.	Variation from normal of Mean maximum temperature, 1st May.	Mean minimum temperature, 1st May.	Mean daily temperature, 1st May.
	°	°	°
Chota Nagpur	+1·8	+0·4	+1·1
United Provinces of Agra and Oudh	+4·0	+2·9	+3·5
Punjab	+1·5	+3·6	+2·6
Sind	+2·2	+0·8	+1·5
Rajputana	+2·5	+5·3	+3·9
Gujarat	+1·2	+2·5	+1·9
Central India	+2·5	+0·4	+1·5
Central Provinces	+1·7	−0·6	+0·6
Berar	+2·4	+2·5	+2·5
West Coast	+0·4	+2·0	+1·2
Bombay Deccan	+3·7	+0·7	+2·2
Mysore	+0·7	+2·6	+1·7
Madras Coast	−2·4	+0·4	−1·0
Madras Deccan	+2·4	+2·8	+2·6
South India	+1·4	+2·1	+1·8

During the next three days numerous thundershowers occurred in Bengal and Assam and some local showers in South India, the Deccan and the Upper India hill districts. These showers caused a rapid reduction of temperature in the areas affected by them and on the 4th temperature was more or less below normal over the whole of Assam, Bengal, the United Provinces, East Rajputana and the eastern half of the Peninsula and in excess over the remainder of India and Burma. The deficiency was most marked in Chota Nagpur (—6°·2) and the excess in Central Burma (+8°·0).

The following variation data for the various divisions of India indicate fully the character of the temperature distribution obtaining during the 24 hours ending at 8 A.M. of the 4th:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 4th May.	Mean minimum temperature, 4th May.	Mean daily temperature, 4th May.
	°	°	°
Burma	+4·1	+3·0	+3·6
Assam	—2·2	+0·5	—0·9
Bengal	—3·8	—2·1	—3·0
Orissa	—2·7	—8·2	—5·5
Bihar	—6·3	—2·1	—4·2
Chota Nagpur	—3·7	—8·7	—6·2
United Provinces of Agra and Oudh	—2·8	—0·9	—1·9
Punjab	+2·1	—0·4	+0·9
Sind	+6·9	+2·1	+4·5
Rajputana	+3·5	+1·5	+2·5
Gujarat	+2·2	+2·6	+2·4
Central India	+0·1	+1·2	+0·7
Central Provinces	+0·1	—0·3	—0·1
Berar	+1·1	+4·9	+3·0
West Coast	+0·8	+1·6	+1·2
Bombay Deccan	+2·0	+2·2	+2·1
Mysore	—1·4	+2·0	+0·3
Madras Coast	—1·6	—0·9	—1·3
Madras Deccan	—0·2	—1·2	—0·7
South India	+0·5	+0·9	+0·7

A cyclonic storm crossed into Burma from the Bay on the morning of the 6th and initiated a general burst of rain which lasted until the 8th or 9th. The rainfall caused a large reduction of temperature which was most marked on the 7th. The variation data of that day are given below:—

Province.	Variation from normal of		
	Mean maximum temperature, 7th May.	Mean minimum temperature, 7th May.	Mean daily temperature, 7th May.
	°	°	°
Burma	—9·8	—2·1	—6·0

The reduction was, as is usually the case during periods of rainfall, exhibited chiefly in the day temperature.

The following table, giving comparative data for three stations at which temperature was most largely in defect, shows the unusually low day temperatures registered on the 7th:—

Station.	Variation from normal of		
	Maximum temperature, 7th May.	Minimum temperature, 7th May.	Mean temperature, 7th May.
	°	°	°
Toungoo	—20·1	—4·5	—12·3
Yamethin	—17·3	—3·9	—10·6
Minbu	—12·8	—4·6	—8·7

Fine dry weather prevailed over nearly the whole of India during the period from the 5th to the 8th. Temperature hence increased and was in moderate to large excess on the 8th. The following data show the changes during this period:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.		Change.
	5th May.	8th May.	
	°	°	°
Assam	+1·0	+1·2	+0·2
Bengal	—0·2	+2·3	+2·5
Orissa	—5·2	—0·4	+4·8
Bihar	—0·7	+5·8	+6·5
Chota Nagpur	—6·8	+0·1	+6·9
United Provinces of Agra and Oudh	—0·2	+5·4	+5·6
Punjab	+3·5	+7·7	+4·2
Sind	+7·6	+3·0	—4·6
Rajputana	+2·1	+3·6	+1·5
Gujarat	+3·4	+2·1	—1·3
Central India	+0·5	+3·3	+2·8
Central Provinces	—0·7	+3·3	+4·0
Berar	+2·2	+3·9	+1·7

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF DATE.		Change.
	5th May.	8th May.	
	°	°	°
West Coast	+0·9	+0·7	−0·2
Bombay Deccan	+2·3	+1·0	−1·3
Mysore	+0·9	−1·1	−2·0
Madras Coast	−2·4	+3·6	+6·0
Madras Deccan	−0·4	+2·4	+2·8
South India	− 0	+0·7	+1·1

Weather became disturbed in North-East India on the 9th and rain was received almost daily in that area during the next four days. Temperature hence diminished rapidly in that area and was steadily below the average throughout the period :—

The following gives variation data of that area for this period :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	9th May.	10th May.	11th May.	12th May.	13th May.	14th May.
	°	°	°	°	°	°
Bengal	−3·4	−3·7	−2·6	−2·8	−3·3	−3·9
Orissa	−3·1	−3·4	−4·0	−5·1	−3·8	+1·6
Bihar	−3·2	−1·0	+0·2	−8·6	−5·4	−1·5
Chota Nagpur	−3·4	−4·3	−6·1	−10·5	−5·2	−1·3

With the cessation of showers on the 15th temperature increased rapidly in that area and was again above the normal on the 17th.

The following variation data for the 14th and 17th illustrate this change :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	14th May.	17th May.
	°	°
Bengal	−3·9	+1·6
Orissa	+1·6	+1·8
Bihar	−1·5	+2·6
Chota Nagpur	−1·3	+0·3

The temperature conditions were, on the other hand, very unsteady during this period in North-Western India. Temperature was largely above the normal in Sind and the Punjab on the 9th and 10th and in defect in Rajputana, where the weather was feebly unsettled with local thunderstorms and duststorms. A depression appeared over Sind on the 11th and marching north-eastwards passed into the East Punjab and the adjacent hill districts on the 13th. Fairly general rain occurred in East Rajputana, the Punjab and the neighbouring districts of the United Provinces on the 11th and produced a very rapid fall of temperature.

The following variation data of the 10th, 11th and 12th show the character and intensity of the temperature changes in North-West India (excluding Gujarat) :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	10th May.	11th May.	12th May.
	°	°	°
Punjab	+9·1	−4·2	−6·2
Sind	+6·4	+4·7	+2·7
Rajputana	−1·0	−5·1	−3·9
United Provinces of Agra and Oudh	−1·4	−4·1	−9·2

Before these abnormal conditions had completely passed away, weather became again feebly disturbed in that area during the 13th in consequence of the advance into the Punjab of a cyclonic storm from the Arabian Sea. The influx of sea winds and the showers accompanying the storm produced a general reduction of temperature, largest in amount in the Punjab, Sind and Rajputana.

The following gives data for the period 13th to 17th for the various divisions of North-Western India :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	13th May.	14th May.	15th May.	16th May.	17th May.
	°	°	°	°	°
Punjab	−2·0	−0·7	−10·4	−8·1	−5·0
Sind	+0·8	−14·5	−6·8	−2·0	−0·9
Rajputana	+0·6	−3·2	−10·3	−3·0	−0·1
Gujarat	+1·4	−2·2	−1·0	−0·2	+0·1
United Provinces of Agra and Oudh.	−4·0	+1·4	+0·1	−4·2	−0·6

The effect of the disturbed weather on temperature in North-Western India passed away quickly during the 17th and fairly normal temperature conditions were re-established in that area on the 18th.

Weather was fine during practically the whole of this period in the Peninsula and slightly unsettled with occasional thundershowers in the Central Provinces and Central India. Temperature was hence generally above the normal in the former area and in defect in the central parts of the country.

The following variation data for each day from the 9th to the 17th illustrate these features :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF								
	9th May.	10th May.	11th May.	12th May.	13th May.	14th May.	15th May.	16th May.	17th May.
	°	°	°	°	°	°	°	°	°
Central India	+1·7	−1·0	−0·9	−2·5	−0·2	+0·7	−2·0	−3·2	−0·1
Central Provinces.	+1·8	−0·6	−1·1	−3·4	−1·1	+1·8	−0·3	−0·9	+0·8
Berar	+1·7	+0·1	−1·1	−0·9	−1·8	+1·8	−2·6	−1·0	−0·4
West Coast	+1·5	+1·8	+1·4	+1·4	+1·7	+1·9	+1·4	+1·2	+0·3
Bombay Deccan	+0·1	−0·9	−0·2	+0·3	+1·5	+0·7	−1·5	−0·8	−0·5
Mysore	+1·3	+1·9	+2·1	+1·7	+2·6	+0·4	−1·6	+0·4	+0·5
Madras Coast	+4·0	+2·7	+1·0	+1·4	+1·1	+0·4	+2·6	+3·6	+1·7
Madras Deccan	+1·4	+1·6	+1·4	+1·9	+2·9	+1·9	−0·6	+0·6	+2·2
South India	+0·8	+1·7	+0·1	+0·6	+0·7	−0·2	+0·6	−0·2	−1·2

A remarkable feature of the temperature conditions of the period, 8th to the 16th, in the Peninsula was the excessive temperature in the coast districts of Madras, south of Cocanada—a result of the prevalence of abnormal dry westerly winds.

The following gives data for five stations in illustration :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF								
	8th May.	9th May.	10th May.	11th May.	12th May.	13th May.	14th May.	15th May.	16th May.
	°	°	°	°	°	°	°	°	°
Masulipatam	+5·2	+8·8	+7·4	+0·6	+0·8	−0·5	+0·9	+7·8	+8·1
Nellore	+4·6	+1·9	+3·4	+1·8	+2·7	+2·9	+1·3	−1·7	+1·9
Madras	+4·8	+6·7	+4·0	+5·1	+5·4	+3·0	+1·6	+2·9	+6·1
Cuddalore	+2·8	+4·7	+1·3	+3·4	+4·1	+2·3	+0·9	+4·2	+3·1
Negapatam	+3·9	+4·0	+3·6	+1·0	+4·6	+5·0	+1·7	+2·8	+2·2

The excess was exhibited chiefly in the day temperature.

Temperature increased briskly on the 18th (except in Burma and North-East India, which obtained local showers) and was above the normal on the 19th over the whole of the country with the exception of Burma, Assam, East Bengal and parts of Madras, where it was in slight to moderate local defect. The excess was greatest in Bihar and Chota Nagpur over the greater part of which areas it varied from 4° to 6° in amount.

The temperature changes during the next three days tended to accentuate these abnormal features of the distribution. The following variation data for the 19th and 22nd illustrate these remarks :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	19th May.	22nd May.
	°	°
Burma	−1·9	+0·5
Assam	−1·7	−1·5
Bengal	+0·5	−3·4
Orissa	+2·1	+3·5
Bihar	+3·7	−4·9
Chota Nagpur	+3·8	+3·7
United Provinces of Agra and Oudh	+3·2	+2·2
Punjab	+1·7	+6·3
Sind	+0·4	+1·5
Rajputana	+1·5	+1·1
Gujarat	+0·1	+0·1
Central India	+2·3	+1·7
Central Provinces	+2·8	+3·1
Berar	+3·5	+2·2
West Coast	+1·7	+1·1
Bombay Deccan	+2·6	+1·6
Mysore	+2·0	−1·4
Madras Coast	+0·9	−0·8
Madras Deccan	+2·8	−2·2
South India	+0·2	+0·4

Temperature increased on the 23rd rapidly in the south of the Peninsula and briskly in Gujarat, and on the morning of the 24th exceeded the normal in all districts except Bengal, Orissa, Bihar and Chota Nagpur.

The following data define the areas of greatest defect and excess of temperature on this day :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 24th May.	Mean minimum temperature, 24th May.	Mean daily temperature 24th May.
	°	°	°
Bihar	−6·1	−0·2	−3·2
Chota Nagpur	−5·9	−1·3	−3·6
Punjab	+5·4	+8·3	+6·9
Rajputana	+3·6	+3·0	+3·3
Central India	+3·6	+3·5	+3·6
Central Provinces	+3·1	+3·3	+3·2
Berar	+1·9	+4·6	+3·3
Bombay Deccan	+5·3	+2·1	+3·7
Mysore	+3·2	+3·3	+3·3
Madras Deccan	+6·4	+3·7	+5·1
South India	+3·4	+2·7	+3·1

No large change occurred until the 26th when series of duststorms and thunderstorms occurred in Upper India and reduced temperature considerably. Temperature was below the normal over the large belt of country lying between the West Punjab and Assam from the 27th to the 29th.

The following variation data for the 28th indicate the character of the conditions obtaining during this period :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 28th May.	Mean minimum temperature, 28th May.	Mean daily temperature, 28th May.
	°	°	°
Burma	−1·3	+0·1	−0·6
Assam	+1·8	+2·5	+2·2
Bengal	−0·8	+0·5	−0·2
Orissa	−1·0	−0·6	−0·8
Bihar	+1·2	−0·1	+0·6
Chota Nagpur	−4·6	−4·4	−4·5
United Provinces of Agra and Oudh	−5·4	−1·8	−3·6
Punjab	−2·1	−1·7	−1·9
Sind	+2·7	+0·3	+1·5
Rajputana	+0·4	−0·4	0
Gujarat	+0·2	+1·0	+0·6
Central India	−1·9	+1·6	−0·2
Central Provinces	+1·8	+0·8	+1·3
Berar	+1·6	+2·7	+2·2
West Coast	+1·6	+2·7	+2·2
Bombay Deccan	+4·2	+1·7	+3·0
Mysore	+1·1	+3·1	+2·1
Madras Coast	+1·3	+2·4	+1·9
Madras Deccan	+0·7	+3·5	+2·1
South India	+1·3	+1·9	+1·6

The temperature changes were very irregular on the last two days of the month but on the whole tended to establish an approximately normal distribution of temperature.

The following variation data for the 29th and 31st exhibit the effect of these changes :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	29th May.	31st May.
	°	°
Burma	−1·7	+0·2
Assam	+1·3	+0·3
Bengal	+1·1	−1·5
Orissa	−2·4	−2·1
Bihar	+0·5	+0·2
Chota Nagpur	−6·2	+2·3
United Provinces of Agra and Oudh	−0·6	+0·4
Punjab	−0·2	+1·4
Sind	+1·8	+2·6
Rajputana	+3·3	+3·0
Gujarat	+1·0	+0·8
Central India	+2·0	+1·4
Central Provinces	+1·9	+2·1
Berar	+2·8	+1·6
West Coast	+2·1	+1·7
Bombay Deccan	+2·8	+2·0
Mysore	+0·8	+2·0
Madras Coast	+0·6	−0·2
Madras Deccan	+2·9	+1·2
South India	+1·7	+0·7

Winds.

Winds were steadier and stronger than usual at Port Blair and the Pegu Coast stations.

On the Arakan Coast the winds, although considerably steadier than usual, were unusually feeble. They were, on

the mean of the month, much more westerly than usual at Port Blair but slightly less westerly at Diamond Island and Akyab.

The following gives data for these stations : —

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, May 1902.	Normal percentage, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Westerly deflection.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
				°	°	°			
Port Blair .	60	41	+19	S 64 W	S 38 W	+26	221	171	+50
Diamond Island.	58	47	+11	S 64 W	S 72 W	− 8	185	177	+ 8
Akyab .	42	30	+12	S 6 W	S 24 W	−18	66	89	−23

The wind was remarkably steady on the Orissa Coast, although not quite so vigorous as usual. In Bengal the air movement was above its normal intensity at the coast station of Saugor Island and lighter than usual in the interior. The percentage of steadiness was, however, somewhat lower than usual throughout the province.

The following gives data for steadiness and velocity :—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, May 1902.	Normal percentage, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
				°	°	°
Calcutta . .	49	65	−16	150	172	−22
Saugor Island .	71	73	− 2	428	394	+34
False Point . .	89	73	+16	315	338	−23

As might be expected from the abnormal pressure features of the month, winds were more southerly than usual on the West Bengal and Orissa Coasts. There was an opposite (westerly) deflection on the East Bengal Coast so far as that area is represented by Chittagong.

The following data illustrate these features : —

STATION.	MEAN WIND DIRECTION.	
	Actual, May 1902.	Normal, May.
	°	°
Chittagong	S 8 W	S 1 E
Saugor Island	S 1 E	S 8 W
False Point.	S 10 W	S 23 W

The wind blew from its normal direction in the interior of Bengal (represented by Calcutta).

Easterly winds usually obtain steadily during the month in the northern districts of Bengal and Bihar and occasionally extend westwards up the north side of the Gangetic Plain, imparting a well marked easterly component to the mean wind direction of the month in that area. In the month under review this influence extended as far west as Ludhiana.

The following data illustrate this :—

STATION.	MEAN WIND DIRECTION.	
	Actual, May 1902.	Normal, May.
	°	°
Darbhanga	S 73 E	S 82 E
Allahabad	15 E	N 3 W
Roorkee	S 10 E	S 53 W
Ludhiana	S 37 E	N 61 W

Winds were on the whole steadier and stronger than usual in the United Provinces and East Punjab and below their normal strength in North Bihar and Chota Nagpur. This is shown clearly by the following data :—

AREA.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, May 1902	Normal percentage, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
North Bihar . .	69	60	+ 9	119	152	−33
Chota Nagpur .	19	15	+ 4	210	222	−12
United Provinces .	25	21	+ 4	96	89	+ 7
East Punjab . .	19	14	+ 5	70	69	+ 1

The air movement varied little from the normal in the Indus Valley—the region of greatest deficiency of pressure The following gives data in illustration :—

STATION.	MEAN WIND VELOCITY IN MILES PER DIEM.			MEAN WIND DIRECTION.	
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.
				°	
Peshawar . . .	111	116	− 5	N 9 E	N 17 E
Jacobabad . . .	102	112	−10	S 31 E	S 40 E
Kurrachee . . .	433	407	+24	S 69 W	S 66 W

Winds blew more directly from the west than usual in East Rajputana and were below their normal intensity. The following gives data for Jaipur:—

STATION.	MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, May 1902.	Normal, May.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
	°	°			
Jaipur . . .	S 74 W	N 66 W	129	156	—27

Winds were unusually steady and strong in Berar, the Central Provinces and the Bombay Deccan, and on the mean of the whole month were approximately normal in direction.

The following gives data for stations in these areas:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, May 1902.	Normal percentage, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
				°	°			
Belgaum . .	80	60	+20	S 89 W	S 88 W	440	424	+ 16
Sholapur . .	74	55	+19	N 47 W	N 49 W	411	255	+156
Akola . . .	78	75	+ 3	N 51 W	N 50 W	241	224	+ 17
Buldana . .	82	69	+13	N 47 W	N 49 W	329	286	+ 43
Khandwa . .	89	72	+17	N 59 W	N 62 W	301	241	+ 60
Nagpur . .	72	41	+31	N 50 W	N 46 W	232	228	+ 4

The air movement was practically normal in character on the Konkan Coast, as is shown by the following data:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, May 1902.	Normal percentage, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
				°	°			
Bombay . .	82	70	+12	N 88 W	N 83 W	208	247	—39
Karwar . . .	86	82	+ 4	N 66 W	N 67 W	145	128	+17

Winds were on the whole below their normal strength in South India and Mysore. Their directions, however, varied somewhat irregularly from the normal but the variations were apparently of little significance.

The following gives comparative data of steadiness and strength of the air movement for the various divisions of Northern India and the Peninsula:—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, May 1902.	Normal percentage, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
Bengal . . .	53	60	— 7	242	239	+ 3
Orissa . . .	89	73	+16	315	338	—23
North Bihar . .	69	60	+ 9	119	152	—33
Chota Nagpur . .	19	15	+ 4	210	222	—12
United Provinces of Agra and Oudh .	25	21	+ 4	96	89	+ 7
Punjab . . .	22	19	+ 3	84	84	0
Sind	57	48	+ 9	268	260	+ 8
Rajputana . . .	76	59	+17	228	241	—13
Berar . . .	80	72	+ 8	285	255	+30
Central Provinces .	81	57	+24	267	235	+32
Bombay Deccan . .	77	58	+19	426	340	+86
West Coast . .	84	76	+ 8	177	188	—11
Madras Deccan . .	53	53	0	175	187	—12
Madras Coast . .	63	65	— 2	225	219	+ 6
Mysore . . .	69	70	— 1	171	189	—18
South India . . .	50	55	— 5	67	98	—31

The air movement of the month was on the whole steadier and stronger than usual at the hill stations in Upper and Central India and very variable and light in the Eastern Himalayas.

The mean wind direction varied from the normal in a very extraordinary manner at Simla and Chakrata, for which data are given below:—

HILL STATION.	MEAN WIND DIRECTION.	
	Actual, May 1902.	Normal, May.
	°	°
Simla	S 83 W	N 12 W
Chakrata	S 11 E	S 65 W

The mean wind direction was S 2° E at Zanzibar (or 3° more southerly than usual) and S44° E (or exactly normal) at the Seychelles. Winds were steadier and stronger than usual at both stations.

It may be noted that the mean strength of the air movement was 3·6 in the Bay of Bengal and 3·0 in the Arabian Sea.

The following is a brief summary of the chief abnormal features of the air movement of the month in India:—

(1) Winds were steadier and stronger than usual at Port Blair and in Lower Burma.

(2) Winds were remarkably steady on the Orissa Coast and blew more directly from the south than usual in that area as well as on the West Bengal Coast. They were more vigorous than usual at Saugor Island.

(3) Normal easterly winds obtained in North Bihar and extended westwards along the foot of the Himalayas as far as Ludhiana.

(4) Winds were unusually strong and steady in Berar, the Central Provinces and West Deccan.

(5) The air movement was on the whole below its normal intensity in Southern India and Mysore.

(6) Winds were lighter than usual in the Arabian Sea, but about 20 per cent. above their normal strength in the Bay of Bengal.

Humidity and Cloud.

The mean pressure of the aqueous vapour in the air was larger than usual in the Bay Islands, Burma, Bengal (except the coast districts), Orissa, Bihar, Chota Nagpur and the Gangetic Plain. As temperature was generally slightly below the normal in these areas, the relative humidity of the month was in slight to moderate excess at most stations.

The following table gives comparative data for this area of increased humidity:—

PROVINCE OR DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
	"	"	"	%	%	
Bay Islands	·940	·937	+·003	84	83	+ 1
Burma	·891	·881	+·010	80	76	+ 4
Bengal	·910	·913	−·003	79	78	+ 1
Orissa	·993	·970	+·023	82	82	0
Bihar	·836	·765	+·071	70	62	+ 8
Chotá Nagpur	·513	·467	+·046	46	40	+ 6
Gangetic Plain	·593	·526	+·067	40	37	+ 3

The excess was more than 4 at the stations, for which data are given below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
	"	"	"	%	%	
Darbhanga	·836	·765	+·071	70	62	+8
Hazaribagh	·513	·467	+·046	46	40	+6
Diamond Island	·885	·891	−·006	79	74	+5

The air was slightly drier than usual in the submontane districts of the Punjab, East Rajputana and in the part of the United Provinces represented by Meerut. The deficiency was most marked at Peshawar and Meerut, for which data are given below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
	"	"	"	%	%	
Peshawar	·420	·423	−·003	34	39	−5
Meerut	·454	·494	−·040	35	40	−5

The air was damper than usual, both absolutely and relatively, in Sind, the Punjab (excepting the submontane districts) and at Roorkee in the United Provinces. The

variations were, however, small to moderate in amount, except locally at Jocobabad, for which data are given below:—

Station.	Absolute humidity.			Relative humidity.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
	"	"	"	%	%	
Jacobabad . . .	·845	?	?	47	30	+17

The air was drier than usual over the Peninsula, with the exception of the South Konkan, Malabar, Mysore and South and Central Madras, in which areas both the relative and absolute, humidities were more or less above the normal.

The diminished humidity in this area was in part a temperature effect and in part a result of actual deficiency of the aqueous vapour. The following gives comparative data:—

Station.	Absolute humidity.			Relative humidity.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
	"	"	"	%	%	
Nagpur . . .	·357	·448	—·091	22	29	—7
Sholapur . . .	·454	·471	—·017	33	37	—4
Buldana . . .	·390	·425	—·035	30	34	—4
Khandwa . . .	·445	·466	—·021	30	33	—3
Bombay . . .	·899	·877	+·022	71	74	—3
Bangalore . . .	·596	·594	+·002	61	62	—1

The mean humidity of the month was practically normal at the hill stations in Northern India, and in slight to moderate defect in Baluchistan and at Pachmarhi and Chikalda.

The following gives data for six representative stations:—

Station.	Absolute humidity.			Relative humidity.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
	"	"	"	%	%	
Chakrata . . .	·279	·276	+·003	49	48	+1
Katmandu . . .	·502	·496	+·006	69	68	+1
Darjeeling . . .	·400	·408	—·008	85	87	—2
Pachmarhi . . .	·322	·349	—·027	27	32	—5
Quetta . . .	·266	·276	—·010	38	41	—3
Chikalda . . .	·342	·373	—·031	30	35	—5

It was, on the other hand, in large excess in the valley of Kashmir and in moderate excess at Leh, due solely to the presence in the air of a larger amount of the aqueous vapour than usual.

The following gives data for these two stations:—

Station.	Absolute humidity.			Relative humidity.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
	"	"	"	%	%	
Srinagar . . .	·538	·431	+·107	83	71	+12
Leh	·142	·128	+·014	43	39	+ 4

The mean daily humidity was less than 35 per cent. at the following stations:—

Station.	Relative humidity.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
	%	%	
Akola	34	28	+ 6
Sholapur	33	37	— 4
Buldana	30	34	— 4
Khandwa	30	33	— 3
Chikalda	30	35	— 5
Jaipur	29	32	— 3
Pachmarhi	27	32	— 5
Nagpur	22	29	— 7

The driest area during the month hence included East Rajputana, Berar, the greater part of the Central Provinces and West Deccan.

The driest period of the month was from the 4th to the 7th. The following gives the lowest humidities recorded during this period:—

Station.	Date.	Hour.	Lowest humidity recorded during May 1902.
			%
Deesa	4th May	4 P.M.	4
Mount Abu	"	10 A.M.	8
Pachmarhi	"	4 P.M.	9
Mount Abu	"	8 A.M.	9
Buldana	5th	4 P.M.	5
Deesa	"	"	6
Nagpur	"	"	8

STATION.	Date.	Hour.	Lowest humidity recorded during May 1902.
			%
Pachmarhi	5th May	4 P.M.	9
Chikalda	,,	,,	8
Do.	,,	10 A.M.	9
Jaipur	6th	4 P.M.	8
Nagpur	,,	,,	8
Buldana	,,	,,	9
Meerut	7th	,,	8
Jaipur	,,	,,	9
Khandwa	,,	,,	9
Nagpur	,,	,,	9

These humidities are, it may be noted, not so low as are occasionally registered in the month of May.

The air was considerably damper than usual at Perim (+14) and the Seychelles (+7).

The chief features of the hygrometric conditions of the month in the Indian area were as follows:—

(1) The air was damper than usual over the whole of Northern India, with the exception of the Submontane Punjab, East Rajputana and the western districts of the United Provinces, where the mean humidity of the month was below the normal. The increased humidity was greatest at Jacobabad (+17), Darbhanga (+8) and Hazaribagh (+6).

(2) Humidity was, on the mean of the month, normal or in slight excess in the South Konkan, Malabar, Mysore and Central and South Madras.

(3) The air was drier than usual over the northern half of the Peninsula and East Madras, the abnormal dryness being on the whole most marked at Nagpur (−7).

(4) Humidity was approximately normal at the hill stations in Northern India and Baluchistan. It was, on the other hand, greater than usual at Srinagar in the valley of Kashmir (+12).

The mean cloud amount of the month was in slight to moderate excess at Port Blair and in Burma, Assam, Bengal, Orissa, Bihar, Chota Nagpur and the greater part of the Gangetic Plain. The following gives data for these areas:—

STATION OR AREA.	MEAN CLOUD AMOUNT.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
Port Blair	7·3	6·7	+0·6
Burma	6·4	6·2	+0·2
Bengal	5·5	5·2	+0·3
Bihar	2·1	2·0	+0·1
Chota Nagpur	4·5	3·6	+0·9
Gangetic Plain	2·2	1·6	+0·6

Cloud was, on the other hand, more or less below the normal in the Punjab, Sind, Rajputana, Berar, the western and central districts of the Central Provinces, the Konkan and Central Madras.

Comparative data for these areas are given below:—

AREA.	MEAN CLOUD AMOUNT.		
	Actual, May, 1902.	Normal, May.	Variation of actual from normal, May, 1902.
Central Madras	3·4	4·9	−1·5
Konkan	2·1	3·5	−1·4
Punjab	1·2	2·2	−1·0
Rajputana	1·2	1·9	−0·7
Berar	1·9	2·5	−0·6
Sind	1·3	1·7	−0·4
Central Provinces	2·8	3·0	−0·2

The mean cloud amount of the month was practically normal in the Bombay Deccan and South India, as is shown by the following data:—

AREA.	MEAN CLOUD AMOUNT.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
Bombay Deccan	4·2	3·9	+0·3
South India	5·0	4·6	+0·4

Skies were clouded to a much larger extent than usual during the month in Hyderabad and parts of Mysore, as is shown by the following data for three representative stations:—

AREA.	STATION.	MEAN CLOUD AMOUNT.		
		Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
MYSORE	Mysore	7·1	5·4	+1·7
	Hassan	6·4	5·4	+1·0
HYDERABAD	Hyderabad	4·3	2·9	+1·4

There was less cloud than usual at all the hill stations in Northern and Central India, with the exception of Katmandu, Srinagar, Chakrata and Chikalda.

The following gives comparative data for ten stations :—

Hill station.	Mean cloud amount.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
Katmandu	6·3	5·4	+0·9
Chakrata	3·7	3·5	+0·2
Srinagar	3·7	3·5	+0·2
Pachmarhi	2·2	2·8	—0·6
Chikalda	2·9	2·9	0
Simla	3·3	3·8	—0·5
Darjeeling	6·9	7·4	—0·5
Ranikhet	3·0	3·4	—0·4
Mount Abu	1·0	1·4	—0·4
Kailang	5·7	5·9	—0·2

Skies were most serene during the month at the stations for which data are given below :—

Station.	Mean cloud amount.		
	Actual, May 1902.	Normal, May.	Variation of actual from normal, May 1902.
Ludhiana	1·0	2·1	—1·1
Roorkee	0·9	1·6	—0·7
Udaipur	0·8		
Buldana	0·8	2·5	—1·7
Jacobabad	0·7	1·1	—0·4
Deesa	0·7	1·5	—0·8
Jamnagar	0·4		

There was somewhat more cloud than usual at Zanzibar and the Seychelles. Cloud was, on the other hand, largely in defect at Perim (—1·4).

The following is a summary of the chief features of the distribution of cloud during the month :—

(1) Cloud was in large excess in Hyderabad, parts of Mysore and Orissa, and in slight to moderate excess in the Bay Islands, Burma, Assam and North-Eastern India.

(2) Cloud was more or less in defect in North-Western India, the Konkan, Berar, the west and centre of the Central Provinces, and Central Madras, the deficiency being most pronounced at Buldana (—1·7), Bellary (—1·5) and Bombay and Karwar (each—1·4).

(3) The mean cloud amount of the month was somewhat below the normal at most of the hill stations.

Rainfall.

The rainfall of the month of May is usually small in amount and of little economic importance over by far the greater part of the country, including the Punjab, Rajputana, the United Provinces, Central India, Berar, the Central Provinces, the North Deccan and North Bombay. Moderate to heavy rain is usually received in three areas :—

1st.—Bengal and Assam.

2nd.—Lower Burma and Tenasserim.

3rd.—Southern India, more especially Malabar.

The rainfall in the first of these areas is due to thundershowers, which are heaviest and most frequent in East Bengal, Assam and the northern districts of North Bengal. In the second and third areas the rainfall in the earlier part of the month is usually due to thundershowers, and in the latter part to temporary advances of the humid winds of the south-west monsoon.

Tenasserim and Lower and Central Burma obtained heavier rain than usual, due partly to the heavy burst accompanying the first cyclonic storm of the month, and partly to the unusually frequent occurrence of the usual hot weather thundershowers. Bengal, North Bihar, North Oudh, the submontane and hill districts of the United Provinces, the South, Submontane and North Punjab, Sind, Mysore and Madras South and South-Central also had somewhat more rain than the normal of the month.

The hot weather storms were much more frequent than usual in all these areas, with the exception of Sind, which obtained rain solely from a cyclonic storm of great intensity which marched through that area on the 13th. The excess was most pronounced in East and Deltaic Bengal where it averaged 2·63 inches (25 per cent. of the normal) and 3·29 inches (53 per cent. of the normal), respectively.

The precipitation of the month was more or less in defect over the remainder of the country, more especially in Malabar, where it was mainly a result of the absence of the preliminary irruptions of humid monsoon winds which usually occur during the second half of the month, and are the forerunners of the permanent advance of the monsoon current.

The following table gives comparative rainfall data for the 56 rainfall divisions of India:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, May 1902.	Average normal, May.	Average actual, May 1902.	Average normal, May.	Variation of actual from normal, May. 1902.
				Inches.	Inches.	Inches.
Burma	Tenasserim	21·8	18·7	29·20	23·02	+ 6·18
	Lower Burma (Deltaic)	15·3	14·7	16·23	12·07	+ 4·16
	Central do	9·9	9·4	8·85	6·79	+ 2·06
	Upper do	7·7	8·4	4·62	5·93	— 1·31
	Arakan	10·1	12·0	9·08	12·49	— 3·41
Bengal and Assam	Eastern Bengal	13·8	10·9	13·08	10·45	+ 2·63
	Assam (Surma)	16·7	16·1	15·38	18·00	— 2·62
	Do. (Hills)	15·6	15·2	11·12	15·05	— 3·93
	Do. (Brahmaputra)	12·0	14·5	7·97	12·03	— 4·06
	Deltaic Bengal	10·1	8·0	9·45	6·16	+ 3·29
	Central do.	7·5	6·2	5·35	4·57	+ 0·78
	North do.	12·0	11·5	11·71	10·65	+ 1·06
	Bengal Hills	14·3	13·6	7·80	8·45	— 0·65
	Orissa	6·4	5·1	3·22	3·74	— 0·52
	Chota Nagpur	4·5	3·7	2·31	2·22	+ 0·09
	Bihar (South)	1·9	2·1	0·83	1·42	— 0·59
	Do. (North)	4·5	4·2	3·64	3·07	+ 0·57
United Provinces of Agra and Oudh.	United Provinces (East)	1·1	0·9	0·39	0·48	— 0·09
	Oudh (South)	1·1	1·1	0·33	0·52	— 0·19
	Do. (North)	2·6	1·7	1·42	0·95	+ 0·47
	United Provinces (Central)	0·3	0·9	0·07	0·36	— 0·29
	Do. do. (West)	0·3	1·2	0·09	0·45	— 0·36
	Do. do. (East Submontane)	2·8	1·9	1·60	1·17	+ 0·43
	Do. do. (West do.)	1·8	1·8	0·86	0·81	+ 0·05
	Do. do. (Hills)	4·9	4·5	2·14	2·12	+ 0·02
Punjab and North-West Frontier Province.	Punjab (South-East)	1·0	1·5	0·59	0·60	— 0·01
	Do. (South)	1·9	1·3	0·87	0·56	+ 0·31
	Do. (Central)	2·0	1·8	0·81	0·83	— 0·02
	Do. (Submontane)	2·5	1·9	1·28	0·86	+ 0·42
	Do. (Hills)	4·7	5·3	2·32	2·66	— 0·34
	Do. (North)	2·7	2·4	1·12	1·10	+ 0·02
	Do. (West)	1·2	1·0	0·45	0·49	— 0·04
Bombay and Malabar Coast Districts (Madras).	Malabar	6·1	7·9	4·32	7·08	— 2·76
	Travancore	7·4	...	4·86	...	...
	Madras (South Central)	7·6	5·6	5·05	3·68	+ 1·37
	Coorg	8·6	...	5·13	...	...
	Mysore	6·1	5·7	4·04	3·65	+ 0·39
	Konkan	0·9	1·8	0·50	1·48	— 0·98
	Bombay Deccan	2·2	3·1	1·14	1·71	— 0·57
	Khandesh	0·5	1·1	0·31	0·63	— 0·32
Central Provinces and Berar.	Berar	0·2	0·9	0·05	0·42	— 0·37
	Central Provinces (West)	0·2	0·9	0·10	0·42	— 0·32
	Do. (Central)	0·4	1·0	0·14	0·48	— 0·34
	Do. (East)	1·0	1·7	0·48	0·79	— 0·31
Bombay (North)	Gujarat	0·1	0·4	0·03	0·22	— 0·19
	Kathiawar and Cutch	0·1	0·4	0·05	0·24	— 0·19
	Sind	0·9	0·3	0·98	0·10	+ 0·88
	Baluchistan Hills	0·3	0·3	0·10	0·20	— 0·10
Rajputana and Central India.	Central India (East)	0·6	0·7	0·19	0·29	— 0·10
	Rajputana (East), Central India (West)	0·9	1·1	0·27	0·44	— 0·17
	Rajputana (West)	0·4	0·7	0·16	0·31	— 0·15
Madras	East Coast (North)	2·9	3·4	1·47	2·20	— 0·73
	Madras (Central)	3·4	2·9	1·54	1·66	— 0·12
	East Coast (Central)	0·9	1·7	0·22	1·28	— 1·06
	Do. (South)	3·2	2·8	1·99	2·17	— 0·18
	Madras (South)	3·3	2·7	2·04	1·71	+ 0·33

During the first four days of the month weather was showery in Tenasserim and fine over the remainder of Burma.

A cyclonic storm of considerable intensity, which formed between the Andamans and the Pegu Coast during the 4th, advanced northwards and passed into Lower Burma on the 6th and Central Burma on the 7th. The influx of humid sea winds occasioned by the storm gave a heavy burst of rain in Tenasserim and Lower and Central Burma from the 5th to the 7th, and moderate showers in Arakan and Upper Burma between the 6th and the 9th. Some very heavy downpours were received in Lower Burma, amongst which the following were the more remarkable:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Myaungmya	Wakema	6th May	12·48
	Myaungmya	„ „	6·40
Bassein	Bassein	„ „	5·88
Myaungmya	Pantanaw	7th „	7·10
Thongwa	Yandoon	„ „	6·66

More or less rain continued to fall almost daily over the province during the remainder of the month. The only breaks were from the 10th to the 12th in Tenasserim and Lower and Central Burma, and from the 21st to the 23rd or 24th in Central Burma.

The rainfall of the month was unequally distributed over the province, being in moderate to large excess in Tenasserim, Lower and Central Burma and in slight to considerable defect in Upper Burma and Arakan.

The following gives data for the five divisions of the province:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, May 1902.	Average normal, May.	Variation of actual from normal, May 1902.	Percentage variation from normal.	Average actual, May 1902.	Average normal, May.
	Inches.	Inches.	Inches.			
Tenasserim	29·20	23·02	+6·18	+ 27	21·8	18·7
Lower Burma Deltaic	16·23	12·07	+4·16	+ 34	15·3	14·7
Central Burma	8·85	6·79	+2·06	+ 30	9·9	9·4
Upper Burma	4·62	5·93	−1·31	− 22	7·7	8·4
Arakan	9·08	12·49	−3·41	− 27	10·1	12·0

There were three periods of general rainfall during the month in Assam, *viz.*, the first to the 3rd, the 9th to the 23rd and the 28th to the 31st. The daily falls were only moderate in amount, and the total rainfall of the month was consequently more or less below the normal both in the hills and plains.

The following gives data for the three divisions of the province:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, May 1902.	Average normal, May.	Variation of actual from normal, May 1902.	Percentage variation from normal.	Average actual, May 1902.	Average normal, May.
	Inches.	Inches.	Inches.			
Assam Surma	15·38	18·00	−2·62	− 15	16·7	16·1
Assam Hills	11·12	15·05	−3·93	− 26	15·6	15·2
Assam Brahmaputra	7·97	12·03	−4·06	− 34	12·0	14·5

The data show that the deficiency was greatest, both absolutely and relatively to the normal, in the Brahmaputra Valley, which obtained only 66 per cent. of its norma amount.

The rainfall of the month was unusually light in the Khasi and Jantia Hills, as is shown by the following data for Cherrapoonjee and Jowai:—

Station.	Rainfall.			
	Average actual, May 1902.	Average normal, May.	Variation of actual from normal, May 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cherrapoonjee	27·52	51·30	−23·78	−46
Jowai	12·00	26·18	−14·18	−54

Bengal obtained larger amounts than usual due to the frequent occurrence of thunderstorms. The periods of most general rain were the 9th to the 15th and the 20th to the 26th. Falls exceeding 3 inches in 24 hours were recorded at a large number of stations in North, Deltaic and Central Bengal during these periods, the most noteworthy being:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Champaran	Bagaha	11th May	5·27
Cooch Behar	Matabhanga	12th „	5·03
	Cooch Behar	13th „	5·41
Noakhali	Noakhali	15th „	5·40
	Lakhmipur	„ „	5·38

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
KHULNA . . .	Tala . . .	25th ,, .	5·82
	Kaliganj . . .	,, ,, .	5·52
MURSHIDABAD .	Lalbagh . . .	,, ,, .	5·20
FARIDPUR . .	Madaripur . .	,, ,, .	5·15
MURSHIDABAD .	Azimganj . . .	,, ,, .	5·09
KHULNA . . .	Morelganj . .	26th ,, .	5·71

Orissa and Chota Nagpur obtained showers during the same periods as Bengal, and the total rainfall of the month was 14 per cent. in defect in the former, and 4 per cent. in excess in the latter, area.

The rainfall was very irregularly distributed in Bihar, being 19 per cent. in excess in the northern districts and 42 per cent. in defect in South Bihar. It occurred as local thundershowers, which were most numerous on the 3rd, 9th, 11th, 12th, 22nd, 27th and 28th.

The following gives comparative data for the various divisions of the Bengal Presidency :—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, May 1902.	Average normal, May.	Variation of actual from normal, May 1902.	Percentage variation from normal.	Average actual, May 1902.	Average normal, May.
	Inches.	Inches.	Inches.			
Eastern Bengal . .	13·08	10·45	+2·63	+25	13·8	10·9
Deltaic Bengal . .	9·45	6·16	+3·29	+53	10·1	8·0
Central Bengal . .	5·35	4·57	+0·78	+17	7·5	6·2
North Bengal . .	11·71	10·65	+1·06	+10	12·0	11·5
Bengal Hills. . .	7·80	8·45	−0·65	− 8	14·3	13·6
Orissa	3·22	3·74	−0·52	−14	6·4	5·1
Chota Nagpur .	2·31	2·22	+0·09	+ 4	4·5	3·7
South Bihar . . .	0·83	1·42	−0·59	−42	1·9	2·1
North Bihar . . .	3·64	3·07	+0·57	+19	4·5	4·2

Oudh and the submontane districts of the United Provinces had light to moderate thundershowers on the 3rd, 11th, 12th and 27th. The hill districts received local showers from the 1st to the 3rd, the 7th to the 9th, 13th to the 16th and the 21st to the 25th, and fairly general rain from the 10th to the 12th and again on the 26th an 27th. These falls were in no case heavy. Actually or practically no rain fell during the month in several of the western and central districts.

The following statement shows the distribution of the rainfall of the month in this province :—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, May, 1902.	Average normal, May.	Variation of actual from normal, May 1902.	Percentage variation from normal.	Average actual, May 1902.	Average normal, May.
	Inches.	Inches.	Inch.			
United Provinces, East	0·39	0·48	−0·09	−19	1·1	0·9
South Oudh . .	0·33	0·52	−0·19	−37	1·1	1·1
North ,, . . .	1·42	0·95	+0·47	+49	2·6	1·7
United Provinces, Central	0·07	0·36	−0·29	−81	0·3	0·9
,, ,, West .	0·09	0·45	−0·36	−80	0·3	1·2
,, ,, East submontane.	1·60	1·17	+0·43	+37	2·8	1·9
,, ,, West submontane.	0·86	0·81	+0·05	+ 6	1·8	1·8
,, ,, Hills .	2·14	2·12	+0·02	+ 1	4·9	4·5

The data indicate that the rainfall of the month exceeded the normal in North Oudh and the submontane and hill divisions, and was in defect over the remainder of the province. The deficiency was, however, small in actual amount, ranging from a tenth of an inch in the eastern division to four-tenths in the western division.

Light to moderate rain occurred over the greater part of the Punjab on the 11th, 15th and 26th, and some local showers (chiefly in the hill and submontane districts) on the 10th, 12th, 16th and 27th. The precipitation of the month was normal in the South-East, Central, North and West Punjab; in slight defect in the hill division and slightly above the normal in the southern and submontane districts, as is shown below :—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, May 1902.	Average normal, May.	Variation of actual from normal, May 1902.	Percentage variation from normal.	Average actual, May 1902.	Average normal, May.
	Inches.	Inches.	Inch.			
South-East Punjab.	0·59	0·60	−0·01	− 2	1·0	1·5
South Punjab .	0·87	0·56	+0·31	+55	1·9	1·3
Central Punjab .	0·81	0·83	−0·02	− 2	2·0	1·8
Punjab Submontane	1·28	0·86	+0·42	+49	2·5	1·9
Punjab Hills . .	2·32	2·66	−0·34	−13	4·7	5·3
North Punjab .	1·12	1·10	+0·02	+ 2	2·7	2·4
West Punjab .	0·45	0·49	−0·04	− 8	1·2	1·0

Baluchistan obtained some showers from the 12th to the 14th. A few local showers of no importance also fell on the 24th and 25th, but the total rainfall of the month was small in amount, averaging 0·10 inch, or 50 per cent., below the normal.

Kashmir received general rain during two well-defined periods. The first period was from the 10th to the 16th. The following amounts exceeding 2 inches in 24 hours were registered during the period:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kashmir	Sri Ranbir Singh Pora	14th May	3·59
	Anantnag	,,	2·69
Jummoo	Ramban	,,	2·50
	Sambha	,,	2·25
	Kishtwar	,,	2·18
	Riasi	15th ,,	2·90
	Doda	,,	2·10

The second period lasted from the 22nd to the 27th. The precipitation during this period was much lighter than in the first period, the largest amount recorded in 24 hours being 1·35 inches at Pader on the 26th.

The total rainfall of the month ranged between 2 and 7 inches at 25 out of the 42 rain-gauge stations and was most probably from two to three times the normal fall of the period.

Rajputana received fairly general showers between the 8th and 12th, and occasional showers during the remainder of the month. The amounts were, however, in all cases small and the rainfall of the month was hence even less than the small normal of the period.

The following gives data for the larger States:—

State.	Rainfall.			
	Average actual, May 1902.	Average normal, May.	Variation of actual from normal, May 1902.	Percentage variation from normal.
	Inches.	Inch.	Incn.	
Jodhpur	0·16	0·31	−0·15	−48
Bikaner	0·07	0·84	−0·77	−92
Jaipur	0·40	0·49	−0·09	−18
Alwar	0·17	0·51	−0·34	−66
Bharatpur	0·09	0·40	−0·31	−78
Dholpur	0	0·19	−0·19	−100
Kotah	0·17	0·41	−0·24	−59
Ajmer Merwara	0·41	0·37	+0·04	+11
Udaipur	1·04	0·54	+0·50	+93

Numerous thundershowers occurred in the Gwalior and Bhopal States of Central India during the period from the 8th to the 12th, and a few local showers on the 27th. No rain fell over Bundelkhand and Baghelkhand beyond some scattered showers on the 27th and 28th. The total rainfall of the month was 34 per cent. in defect of the normal in Central India East.

The rainfall of the month was more or less below the normal in Berar and the Central Provinces and occurred as local thundershowers, chiefly from the 1st to the 6th, the 10th to the 13th and the 28th to the 31st.

The following gives comparative data for these areas:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, May 1902.	Average normal, May.	Variation of actual from normal, May 1902.	Percentage variation from normal.	Average actual, May 1902.	Average normal, May.
	Inch.	Inch.	Inch.			
Central Provinces West	0·10	0·42	−0·32	−76	0·2	0·9
Central Provinces Central	0·14	0·48	−0·34	−71	0·4	1·0
Central Provinces East	0·48	0·79	−0·31	−39	1·0	1·7
Berar	0·05	0·42	−0·37	−88	0·2	0·9

Rain fell almost daily in Mysore, the only days without rain being the 10th, 11th, 13th and 28th. The fall was heaviest on the 14th and 20th, when the following large amounts were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Bangalore	Hoskote	14th May	3·40
	Dodballapur	,,	3·27
Chitaldroog	Jagalur	20th ,,	3·70
	Davangere	,,	3·60

The total rainfall of the month averaged 4·04 inches, or 0·39 inch in excess of the normal.

May, 1902, was unusually dry over the whole of the Bombay Presidency, with the exception of Sind, which obtained heavier rain than usual.

The North Kanara district of the Konkan obtained frequent showers during the first and third weeks of the month; the month's total of 1·35 inches was, however, 1·77 inches below the normal.

The Deccan districts of Dharwar, Bijapur, Kolhapur and Belgaum had numerous thundershowers from the 2nd to the 7th and again from the 13th to the 21st and the whole of the Deccan received fairly general but moderate rain on the 31st. Local showers occurred in Gujarat, Cutch and Kathiawar during the second week and in Khandesh during the last three days of the month, but the total amounts received averaged less than a tenth of an inch, except in Khandesh.

Sind received moderate rain on the 13th and 14th from the second cyclonic storm of the month which passed through that area on the 13th. The only noteworthy fall due to the storm in this area was 5·75 inches at Hala in the Hyderabad district.

The average normal rainfall of the province in May varies from 0·10 inch in Sind to 1·71 inches in the Bombay Deccan. The actual rainfall of the month ranged from an average of 0·03 inch in Gujarat to 1·14 inches in the Bombay Deccan and was below the normal throughout the Presidency, with the exception of Sind, which obtained nearly ten times its normal quantity.

The following gives data for the various divisions of the Presidency:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, May 1902.	Average normal, May.	Variation of actual from normal, May 1902.	Percentage variation from normal.	Average actual, May 1902.	Average normal, May.
	Inches.	Inches.	Inch.			
Konkan	0·50	1·48	—0·98	— 66	0·9	1·8
Bombay Deccan	1·14	1·71	—0·57	— 33	2·2	3·1
Khandesh	0·31	0·63	—0·32	— 51	0·5	1·1
Gujarat	0·03	0·22	—0·19	— 86	0·1	0·4
Kathiawar and Cutch	0·05	0·24	—0·19	— 79	0·1	0·4
Sind	0·98	0·10	+0·88	+880	0·9	0·3

The northern coast districts of Madras obtained thundershowers, chiefly on the 11th, 12th, 21st, 24th, 29th and 31st, but they were generally light and the rainfall of the month was 33 per cent. below the normal in that area. The Nellore district had occasional showers during the second half of the month, giving an average total of only 0·22 inch, which is 1·06 inches less than the normal. The East Coast South received general rain on the 11th, 17th and 29th, and local showers on the 10th, 16th, 22nd and 26th. The total fall of the month averaged 1·99 inches in this division, or only 8 per cent. below the normal. The South division obtained occasional thundershowers during the month, and the rainfall of that division was in slight excess (19 per cent). The south central division, including the districts of Salem and Coimbatore, had frequent showers, heaviest on the 8th, 11th and 17th, giving considerably heavier rain than usual. There were numerous showers in Central Madras between the 1st and 6th, the 14th and 18th, the 20th and 22nd and the 26th and the 30th, and the total fall of the month was practically normal in that area. In Malabar the rainfall was not so frequent or heavy as usual, and that division hence obtained a total of only 4·32 inches, or 2·76 inches less than the normal.

The following gives a comparative statement of the rainfall of the month in the 22 collectorates of the Presidency:—

District.	Rainfall.			
	Average actual, May 1902.	Average normal, May.	Variation of actual from normal, May 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	2·12	2·52	—0·40	—16
Vizagapatam	2·07	2·63	—0·56	—21
Godavari	0·87	1·74	—0·87	—50
Kistna	0·77	1·43	—0·66	—46
Nellore	0·22	1·28	—1·06	—83
Chingleput	0·67	1·36	—0·69	—51
Madras	0·17	2·00	—1·83	—91
North Arcot	2·10	2·49	—0·39	—16
South Arcot	1·91	2·13	—0·22	—10
Tanjore	1·43	2·00	—0·57	—29
Trichinopoly	4·31	3·05	+1·26	+41
Madura	2·25	2·00	+0·25	+13
Tinnevelly	1·71	1·38	+0·33	+24
Malabar	4·55	7·77	—3·22	—41
South Canara	3·85	5·84	—1·99	—34
Salem	5·37	3·97	+1·40	+35
Coimbatore	4·56	3·18	+1·38	+43
Nilgiris	6·07	5·16	+0·91	+18
Cuddapah	1·33	1·72	—0·39	—23
Anantapur	1·34	1·92	—0·58	—30
Bellary	2·55	1·84	+0·71	+39
Kurnool	1·08	1·19	—0·11	— 9

HEM RAJ.

TABLE I.—Abstract of Observations taken at 8 A.M. at 224 Stations in India, Burma, etc., in May 1902.

Table

Abstract of Observations taken at 8 A.M. at 224

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure 8 A.M. in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.				+·012								89·3	−1·4	77·1	+0·4	83·2	−0·5	12·2					24·9
1	Tenasserim and Bay Islands.	Car Nicobar	25																					
		Port Blair	61	29·812	+·020	29·804	29·865	3rd	29·718	6th	·147	82·5	87·9	−1·0	78·9	+0·6	83·5	−0·2	9·0	96·4	1st	74·6	27th	21·8
		Mergui	96	29·807	+·024	29·836	29·871	14th	29·712	5th	·129	80·2	86·9	−2·2	75·0	+1·2	81·0	−0·5	11·9	94·6	2nd	71·9	7th	22·7
		Tavoy	26	29·783	+·017	29·840	29·963	14th	29·764	6th	·199	78·7	86·8	−1·6	75·2	0	81·0	−0·8	11·6	94·3	2nd	72·0	1st	22·3
		Moulmein	94	29·776	+·013	29·808	29·829	19th	29·585	6th	·244	79·1	88·1	−1·2	75·8	0	82·0	−0·6	12·3	99·9	5th	72·8	18th	27·1
2	Lower Burma	Rangoon	41	29·793	P	29·776	29·873	2nd	29·493	6th	·380	81·2	90·4	−1·5	77·6	+0·3	84·0	−0·6	12·8	102·6	3rd	73·9	9th	28·7
		Bassein	27	29·811	+·010	29·774	29·897	3rd	29·497	6th	·400	81·4	91·0	−0·5	78·0	+1·0	84·5	+0·3	13·0	99·2	5 days	73·7	6th & 7th.	25·5
		Diamond Island.	41	29·798	0	29·779	29·878	3rd	29·510	6th	·368	83·2	90·5	P	79·6	+0·8	85·1	P	10·9	97·4	1st & 2nd	74·7	6th	22·7
5	Arakan	Akyab	20	29·793	0	29·756	29·920	2nd	29·653	28th	·267	82·2	88·9	−1·7	77·7	−0·5	83·3	−1·1	11·2	94·6	5th	73·2	14th	21·4
3	Central Burma	Toungoo	183	29·657	+·015	29·781	29·739	19th	29·516	6th	·223	83·5	92·8	−2·9	75·9	P	84·4	P	16·9	104·1	3rd & 4th.	72·6	3 days.	31·5
	II.—Burma Inland.				+·021								96·8	+0·3	76·5	+0·2	86·7	+0·3	20·3					34·0
3	Central Burma	Thayetmyo	130	29·696	+·020	29·766	29·774	19th	29·595	7th	·179	84·9	98·4	0	79·0	+1·3	88·7	+0·7	19·4	106·7	3 days	73·6	29th	33·1
4	Upper Burma	Minbu	165	29·645	+·022	29·752	29·727	3rd	29·537	28th	·190	84·5	99·8	+2·3	79·3	+1·6	89·6	+2·0	20·5	108·1	4th	73·1	7th	35·0
		Yamethin	657	29·160	+·015	29·762	29·228	3rd	29·039	7th	·189	83·5	98·1	+2·8	76·4	+0·2	87·3	+1·5	21·7	109·1	4th	71·2	8th	37·9
		Mandalay	250	29·574	+·030	29·771	29·660	4th	29·466	27th	·194	86·2	99·7	+0·7	78·9	−0·1	89·3	+0·3	20·8	108·6	4th	71·8	21st	36·8
		Kindat	377	29·423	+·036	29·736	29·553	3rd	29·304	28th	·249	79·2	93·8	−1·3	73·5	−0·8	83·7	−1·1	20·3	99·3	6th & 23rd.	69·8	2 days	29·5
		Bhamo	381	29·440	+·002	29·718	29·532	3rd	29·2..3	28th	·239	77·1	91·0	−2·7	71·8	−0·9	81·4	−1·8	19·2	97·0	27th	65·6	4th	31·4
4(a)	Burma Hill Stations.	Maymyo		26·370			26·486	3rd	26·232	20th	·254	72·7	83·2		65·0		74·1		18·2	91·0	3rd & 6th	59·8	2nd	31·2
		Taunggyi																						
		Lashio		27·052	−·001		27·180	2nd	26·925	7th	·255	73·7	88·1	−0·2	67·0	+0·2	77·6	0	21·1	97·0	6th	60·5	1st	36·5
	III.—Assam				+·006								86·2	−0·4	72·3	−0·2	79·3	−0·3	13·9					27·3
	Surma	Silchar	104	29·709	+·011	29·766	29·838	4th	29·565	28th	·273	77·9	88·4	−0·3	73·5	+1·0	81·0	+0·4	14·9	94·5	3 days	67·3	2nd	27·2
9	Brahmaputra	Sibsagar	333	29·472	+·001	29·764	29·697	3rd	29·322	28th	·375	76·0	85·0	−0·9	72·4	+0·7	78·7	−0·1	12·6	93·2	27th	66·0	2 days	27·2
		Dhubri	115	29·663	+·007	29·733	29·828	3rd	29·490	28th	·338	76·9	86·0	+0·1	72·2	−1·0	79·1	−0·5	13·8	93·2	8th	65·7	3rd	27·5
		Tezpur	252	29·536		29·746	29·765	3rd	29·396	28th	·369	76·1	86·2		72·7		79·5		13·5	93·1	26th	66·9	4th	25·2
		Dibrugarh	353	29·456		29·771	29·657	3rd	29·323	7th	·354	76·2	85·5		70·8		78·2		14·7	94·2	2 days	66·0	3 days	28·2
	IV.—Bengal and Orissa.				+·013								91·5	−1·9	75·5	−0·8	83·5	−1·4	16·0					30·2
6	East Bengal	Chittagong	87	29·716	+·013	29·751	29·849	3rd	29·594	28th	·255	81·1	87·9	−0·7	74·5	−0·9	81·2	−0·8	13·4	93·0	5th & 7th	68·6	10th	24·4
		Noakhali	43	29·736		29·726	29·869	3rd	29·623	28th	·246	81·2	87·9		75·0		81·5		12·9	94·7	7th	67·4	9th	27·3
		Comilla	36	29·742		29·726	29·881	3rd	29·618	28th	·263	78·9	89·1		74·0		81·6		15·1	95·3	7th & 8th.	67·8	2nd	27·5
		Sirajganj	49	29·714		29·714	29·896	3rd	29·571	28th	·325	78·0	88·7		72·7		80·7		16·0	94·3	6th, 7th & 8th.	67·2	2nd	27·1
		Narayanganj	26	29·752	+·021	29·726	29·924	3rd	29·631	28th	·293	80·6	88·8	−2·5	75·1	−0·7	82·0	−1·6	13·7	93·6	6th & 7th.	68·7	2nd	24·9
		Barisal	13	29·743	P	29·701	29·919	3rd	29·638	28th	·281	83·0	89·5	−2·4	75·5	−1·9	82·5	−2·2	11·0	94·3	8th	68·1	9th	26·2
		Mymensingh	59	29·715	+·006	29·726	29·834	3rd	29·562	28th	·302	78·0	86·9	−1·7	73·7	−0·1	80·3	−0·9	13·2	93·2	7th & 8th	67·6	22nd	25·6
10	Deltaic Bengal	Faridpur	46	29·728		29·722	29·902	3rd	29·608	28th	·294	81·1	89·9		73·3		81·6		16·6	91·3	7th	67·9	4 days	26·4
		Jessore	33	29·720	+·010	29·700	29·916	3rd	29·599	28th	·317	81·8	91·8	−3·0	75·3	−1·5	83·6	−2·3	16·5	96·5	18th & 20th.	67·2	3rd & 22nd.	29·3
		Calcutta	21	29·725	+·017	29·692	29·875	4th	29·579	25th	·296	83·3	92·2	−2·3	76·7	−0·7	84·5	−1·5	15·5	97·2	8th	68·6	3rd	28·6
		Saugor Island	25	29·717	+·008	29·686	29·861	4th	29·576	25th	·288	85·5	91·6	−0·2	80·7	−0·3	86·2	−0·3	10·9	93·9	5th & 9th	71·0	9th	22·9
		Krishnagar	47	29·704		29·699	29·887	3rd	29·587	28th	·300	81·9	93·8		75·3		84·6		18·5	101·2	1st	68·2	3rd	33·0
		Midnapore	149	29·533		29·679	29·751	4th	29·434	25th	·317	82·8	94·8		77·0		85·9		17·8	101·8	1st	69·2	9th	32·6

I.

Stations in India, Burma, etc., in May, 1902.

Wind Direction, Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity: Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Hygrometry, 8 A.M.: Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall: Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st May 1902.	Normal rainfall for period, 1st to 31st May.	Variation from normal of period, 1st to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				20·46	15·09	+5·37					**I.—Burma Coast and Bay Islands.**		
1				4	2	10	12	2	S 59° W	9·0		7·3	+23	87	·975	7·1	23			17·56	17·09	+ 0·47	17·56	17·09	+ 0·47	2·45	Car Nicobar	Tenasserim and Bay Islands.	1
22	2			1	3	2		1	S 31° W	2·0	1·8	2·1	−14	89	·895	5·1	21	18·00	+3·00	26·27	19·26	+ 7·01	26·27	19·26	+ 7·01	3·60	Port Blair		
28	1					2			S 72° W	1·6				90	·877	5·9	24	17·70	+6·30	30·23	26·05	+ 4·18	30·23	26·05	+ 4·18	3·78	Mergui.		
2	1	3	1	5	3	11	4	1	S 29° W	2·9	3·2	3·1	+ 3	95	·938	8·4	20	17·40	+2·60	28·06	19·40	+ 8·66	28·06	19·40	+ 8·66	4·13	Tavoy.		
	1	3		7	2	11	2	2	S 22° W	8·2	6·9	3·9	+77	86	·921	3·4	P	14·00	P	P	11·22	P		11·22	P	P	Moulmein.		
14		2		5	2	2	1	5	S 27° W	5·9		5·0	+18	88	·946	5·3	13	12·10	+0·90	19·67	10·30	+ 9·37	19·67	10·30	+ 9·37	5·88	Rangoon	Lower Burma.	2
3	3	1	1	1	1	11	5	5	S 82° W	9·1	9·1	4·5	+102	80	·922	6·4	12	11·18	+0·82	13·91	10·43	+ 3·48	13 91	10·43	+ 3 48	3·93	Bassein.		
	3	11	7	6	3			1	N 77° E	2·8	2·7	7·0	−61	88	·971	6·2	13	11·50	+1·50	19·97	11·88	+ 8·09	19·97	11·88	+ 8·09	5·96	Diamond Island.		
		1		23	5	1		1	S 36° E	10·8	10·7	3·5	+206	79	·915	6·1	10	10·10	−0·10	7·97	6·28	+ 1·69	7·97	6·28	+ 1·69	2·48	Akyab	Arakan.	5
																											Toungoo	Central Burma.	3
																				5·13	5·88	−0·75					**II.—Burma Inland.**		
1		1		2	2	5	2		S 8° W	7·5		7·3	+ 3	74	·880	3·8	7	6·90	+0·10	3·05	4·13	− 1·08	3·05	4·13	− 1·08	1·12	Thayetmyo	Central Burma.	3
3			1	20	2	2		3	S 37° E	7·1	8·4			71	·835	4·6	7	6·40	+0·60	1·99	6·01	− 4·02	1·99	6·01	− 4·02	0·46	Minbu	Upper Burma.	4
2				20	9				S 31° E	6·6	6·9			72	·823	4·5	11	8·10	+2·90	3·93	6·76	− 2·83	3·93	6·76	− 2·83	1·19	Yamethin.		
1				1	21	6		1	S 11° W	8·3	8·4			68	·831	2·7	9	6·60	+2·40	4·84	5·55	− 0·71	4·81	5·55	− 0·71	0·94	Mandalay.		
19	1	2	2				2	5	N 18° W	1·3	1·4			83	·836	5·5	10	10·40	−0·40	5·51	6·34	− 0·83	5·51	6·34	− 0 83	1·76	Kindat.		
9	2	6	3			2	7	2	N 23° W	2·5	2·9			86	·793	5·9	9	10·40	−1·40	11·44	6 46	+ 4·98	11·44	6·46	+ 4·98	4·66	Bhamo.		
5		3	1			19	3		S 50° W	5·5				76	·609	3·8	11	12·80	−1·80	6·99	10·39	− 3·40	6·99	10·39	− 3·40	1·18	Maymyo	Burma Hill Stations.	4 a)
																											Taunggyi.		
	2	10	2		7	6	2	2	S 58° E	3·4				81	·669	8·2	17			7·32	6·13	+ 1·19	7·32	6·13	+ 1·19	2·32	Lashio.		
																				11·25	15·10	−2·72					**III.—Assam.**		
29		1	1						N 66° E	1·5	2·6	3·4	−24	88	·851	7·5	18	16·50	+1·50	11·77	17·24	− 5·47	11·77	17·24	− 5·47	2·57	Silchar	Surma.	7
10	3	12		2		2		2	N 35° E	1·7	1·5	2·9	−48	93	·832	7·7	13	15·90	−2·90	6·60	12·62	− 6·02	6·6 0	12·62	− 6·02	1·90	Sibsagar	Brahmaputra.	9
3	2	6	14	1	1	2	2		N 79° E	4·7	5·5	7·0	−21	86	·801	5·5	18	15·70	+2·30	18 77	15·43	+ 3·34	18·77	15·43	+ 3·34	3·54	Dhubri.		
	1	10	14	1	1	4			N 79° E	4·2	4·5			88	·796	6·6	12	11·10	−2·10	7·11			7·11			1·32	Tezpur.		
	8	6	6	3		1	1	6	N 25° E	2·0	1·9			87	·779	3·6	15	15·20	−0·20	12·02			12·02			2·73	Dibrugarh.		
																				8·78	7·48	+1·30					**IV.—Bengal and Orissa.**		
	2	3	7	12	5			2	S 63° E	6·3	6·2	6·4	− 3	81	·861	5·8	13	10·55	+2·45	12·77	10·31	+ 2·46	12·77	10·31	+ 2·46	2·49	Chittagong	East Bengal.	6
	3	3	8	7	4	4	1	1	S 61° E	4·3	4·0			84	·938	4·5	13	10·45	+2·55	16·08	10·06	+ 6·02	16·08	10·06	+ 6·02	5·40	Noakhali.		
5	3		2	3	17		1		S 11° E	4·7				86	·847	5·2	12	11·89	+0·11	11·50	11·01	+ 0·49	11·50	11·01	+ 0·49	2·65	Comilla.		
14	2	1	7	4	3				S E	2·3	2·3			90	·861	5·0	10	10·16	−0·16	8·34	7·95	+ 0·39	8·34	7·95	+ 0·39	1·70	Sirajganj.		
5		3	6	11	4	1	1		S 51° E	6·4		6·2	+ 3	87	·914	6·9	13	11·53	+1·47	10·06	9·44	+ 0·62	10·06	9·44	+ 0·62	2·50	Narayanganj.		
3	2	3	1	7	11	2		2	S 23° E	4·2				84	·951	5·6	11	9·84	+1·16	15·16	9·19	+ 5·97	15·16	9·19	+ 5·97	3·17	Barisal.		
11		1	8	10	1				S 66° E	3·6	3·3			86	·823	5·1*	14	13·48	+0·52	16·42	12·96	+ 3·46	16·42	12·96	+ 3·46	2·50	Mymensingh.		
6	1		4	9	7	4			S 28° E	5·2	4·4			85	·917	3·7	16	10·72	+5·28	9·52	8·30	+ 1·22	9·52	8·30	+ 1·22	1·72	Faridpur	Deltaic Bengal.	1)
12			3	8	6	1	1		S 30° E	2·4	2·3	4·9	−53	84	·923	6·5*	13	9·74	+3·26	13·30	7·94	+ 5·36	13·30	7·94	+ 5·36	2·29	Jessore.		
4	1	2	3	7	9	3	1	1	S 25° E	6·2		7·1	−13	82	·944	6·1	9	7·46	+1·54	9·19	5·68	+ 3·51	9·19	5·68	+ 3·51	2·29	Calcutta.		
	1	1		4	16	8	1		S 7° W	17·8		15·3	+16	92	1·007	6·6	7	6·71	+0·29	4·00	5·09	− 1·09	4·00	5·09	− 1·09	0·93	SaugorIsland.		
1	1	2	6	6	9	2	3	1	S 30° E	5·6	6·2			83	·912	5·7	11	7·74	+3·26	6·14	6·55	− 0·41	6·14	6·55	− 0·41	1·62	Krishnagar.		
2	4	2		3	19	1			S 11° E	4·8	4·3			82	·926	3·1	11	7·05	+3·95	7·22	5·69	+ 1·53	7·22	5·69	+ 1·53	2·04	Midnapore.		

* Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 224 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal.	Bankura .	298	29·406		29·653	29·588	4th	29·278	25th	·310	82·6	95·9		77·1		86·5		18·8	105·1	1st	69·9	3rd	35·2
		Raniganj .	334	29·401		29·684	29·570	4th	29·278	25th	·292	81·2	96·7		76·0		86·4		20·7	107·3	20th	66·0	3rd	41·3
		Burdwan .	99	29·636	+·015	29·682	29·809	4th	29·517	25th	·292	82·0	93·6	−4·8	76·7	−1·1	85·2	−3·0	16·9	102·4	1st	67·8	3rd	34·6
		Naya Dumka .	489	29·246		29·692	29·424	3rd	29·142	28th	·282	82·6	96·8		76·6*		86·7*		20·2	108·4	19th	65·9	22nd	42·5
		Berhampore .	67	29·677	+·015	29·692	29·864	3rd	29·561	28th	·303	82·0	94·5	−2·0	75·9	−0·7	85·2	−1·4	18·6	104·3	18th	70·3	4 days.	34·0
		Rampur Boalia	70	29·684		29·703	29·869	3rd	29·557	28th	·312	81·3	90·9		74·4		82·7		16·5	100·5	18th	66·6	31st	33·9
		Malda . .	72	29·659		29·683	29·834	3rd	29·533	28th	·301	80·1	94·3		74·6		83·5		17·7	104·1	18th	68·0	3rd & 9th.	36·1
		Bogra . .	61	29·687	+·024	29·701	29·830	3rd	29·544	28th	·286	77·2	90·0	−2·5	72·7	−1·8	81·4	−2·2	17·3	97·2	8th	68·2	4 days	29·0
1	North Bengal .	Dinajpur .	123	29·622	+·007	29·700	29·778	3rd	29·488	28th	·290	78·0	89·4	−2·3	73·0	−1·3	81·2	−1·3	16·4	96·3	8th & 18th.	67·5	9th	28·8
		Rangpur .	123	29·662		29·741	29·813	4th	29·507	28th	·306	78·0	88·6		72·2		80·4		16·0	94·7	8th	67·3	2nd, 3rd 9th.	27·4
		Jalpaiguri .	284	29·501	+·021	29·746	29·678	3rd	29·346	28th	·332	77·6	88·4	+0·1	72·2	−0·1	80·3	0	16·2	95·4	8th	65·1	3rd	30·3
		Cooch Behar .	156	29·631		29·744	29·794	3rd	29·471	28th	·323	78·1	87·2		72·6		79·9		14·6	93·4	8th & 27th.	65·6	3rd	27·8
17	North Bihar .	Purnea . .	125	29·629†	+·022†	29·709†	29·792	3rd & 4th,	29·518	28th	·274	79·0	92·4	−2·4	74·01	−0·2	83·01	−1·3	18·4	100·8	8th	63·3	9th	37·5
14	Orissa . .	Balasore .	48	29·686	+·011	29·678	29·847	4th	29·523	25th	·324	84·3	95·0	−2·6	77·6	−1·1	86·3	−1·9	17·4	104·5	23rd	68·9	11th	35·6
		False Point .	21	29·728	+·012	29·696	29·903	3rd	29·584	25th	·319	85·5	89·9	−1·1	80·0	+0·3	85·0	−0·4	9·9	92·5	25th	70·1	4th	22·4
		Cuttack .	80	29·654	+·008	29·676	29·828	3rd	29·513	25th	·315	85·6	100·9	−0·7	80·3	+0·2	90·6	−0·3	20·6	106·4	25th	72·7	4th	33·7
		Puri . .	24	29·727		29·689	29·903	3rd	29·588	25th	315	84·6	89·6		80·0*		84·8*		9·6	92·2	31st	72·1	4th	20·1
	V.—Gangetic Plain and Chota Nagpur.				+ ·007								101·4	−1·1	78·1	+0·1	89·8	−0·5	23·3					40·1
15	Chota Nagpur .	Hazaribagh .	2,007	27·709	−·009	29·639	27·840	4th	27·623	25th	·217	82·1	98·5	−0·7	74·9	−0·6	86·7	−0·7	23·6	106·1	20th, 21st & 22nd.	65·3	3rd	40·8
		Ranchi . .	2,128	27·613	+·006	29·657	27·758	4th	27·516	25th	·242	82·3	98·6	−1·0	74·9	−1·1	86·8	−1·1	23·7	105·7	22nd	65·9	4th	39·8
		Daltonganj .	730‡	28·954		29·630	29·116	4th	28·853	25th	·263	86·5	107·6		81·1		94·4		26·5	113·1	22nd	69·5	1st	43·6
		Purulia . .		28·880		29·646	29·047	3rd	28·784	25th	263	83·7	99·8		75·9		87·8		23·9	109·7	21st	65·4	4th	44·3
		Chaibassa .	760	28·951	+·011	29·655	29·112	4th	28·814	25th	·298	83·4	100·2	-4·9	77·3	−2·7	88·8	−3·8	22·9	109·2	22nd	69·5	6th	39·7
16	South Bihar .	Gaya . .	375	29·305	−·008	29·630	29·497	4th	29·218	29th	·279	87·0	104·3	−0·6	80·5	+1·0	92·4	+0·2	23·8	111·3	20th & 21st.	71·8	22nd	39·5
		Dehri . .	351	29·329		29·650	29·501	4th	29·233	8th	·268	88·5	105·6		80·7		93·2		24·9	112·5	21st	73·5	1st	39·0
		Patna . .	183	29·519	+·004	29·653	29·712	4th	29·425	29th	·287	85·1	99·9	−0·3	78·1	+0·4	89·1	+0·1	21·8	109·5	19th	68·2	22nd	41·3
		Arrah . .	190	29·520		29·660	29·705	4th	29·428	29th	·277	85·5	101·2		78·2		89·7		23·0	108·4	19th & 20th.	66·1	22nd	42·3
		Buxar . .	239	29·418		29·640	29·628	4th	29·349	8th	·279	86·2	102·0		79·5		90·8		22·5	107·5	19th & 20th.	71·6	12th	35·9
17	North Bihar .	Bhagalpur .	160	29·568		29·680	29·745	3rd	29·462	28th	·283	83·1	96·9‡		76·7*		86·8*		20·2	103·8	8th	64·6	9th	39·2
		Darbhanga .	166	29·553	+·004	29·673	29·741	4th	29·449	28th	·295	81·1	93·9	−1·7	76·2	−0·1	85·0	−0·9	17·7	102·8	18th	69·0	22nd	33·8
		Muzaffarpur .	178	29·547		29·679	29·737	4th	29·453	28th	·284	82·3	95·7		75·9		85·8		19·8	104·7	19th	66·3	22nd	38·4
		Motihari .	224	29·494		29·676	29·691	4th	29·388	27th	·303	79·9	95·3		74·4		84·9		20·9	102·9	19th	66·8	3rd, 12th & 22nd.	36·1
		Chapra . .	181	29·518		29·651	29·707	4th	29·428	28th	·279	84·7	100·0		78·5		89·3		21·5	108·5	19th	71·6	3rd & 12th.	36·9
18	United Provinces, East.	Benares . .	267	29·412		29·630	29·580	4th	29·319	8th & 25th.	·261	87·1	105·6	+0·1	79·8	+0·9	92·7	+0·5	25·8	111·8	30th	71·2	1st & 12th.	40·6
		Allahabad .	309	29·365	−·002	29·624	29·510	4th	29·253	8th	·257	89·3	106·9	−0·1	80·5	+1·0	93·7	+0·5	26·4	113·7	22nd	69·3	11th	44·4
23	United Provinces (East Submontane.)	Gorakhpur .	257	29·456	+·023	29·666	29·649	4th	29·361	29th	·288	82·7	99·3	−1·7	77·1	−0·2	88·2	−1·0	22·2	107·7	19th	67·5	11th	40·2
19	South Oudh .	Lucknow .	368	29·314	+·009	29·636	29·486	3rd	29·198	29th	·288	86·7	103·4	−0·6	79·2	+1·4	91·8	+0·4	25·2	111·8	20th	67·3	3rd	44·5
20	North Oudh .	Bahraich .	403	29·299	+·030	29·659	29·480	4th	29·206	29th	·274	86·1	101·2	−1·8	78·5	+0·5	89·9	−0·7	22·7	109·2	20th	69·0	3rd	40·2
21	United Provinces (Central.)	Cawnpore .	416	29·256	+·011	29·619	29·414	4th	29·128	29th	·286	88·8	106·3	+0·1	80·3	?	93·3	?	26·0	111·5	2nd, 22nd & 27th.	72·0	1st	39·5
		Mainpuri .	516	29·157	+·014	29·621	29·301	4th	29·048	29th	·253	90·2	107·5	0	80·0	+0·2	93·8	+0·1	27·5	112·2	7th & 22nd.	70·5	3rd	41·7

* Mean of 30 days.

‡ Mean of 28 days.

I—*continued*

in India, Burma, etc., in May, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st May 1902.	Normal rainfall for period, 1st to 31st May.	Variation from normal of period, 1st to 31st May	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
11	1	2	4	10	3				S 58° E	5·3	6·1			78	·878	3·6	8	6·19	+ 1·81	7·19	3·89	+ 3·30	7·19	3·89	+ 3·30	1·48	Bankura	Central Bengal	11
21			3	5	1	1			S 50° E	2·0				80	·860	3·7	9	5·18	+ 3·82	4·07	3·77	+ 0·30	4·07	3·77	+ 0·30	1·14	Raniganj.		
8		3	3	4	4	7	2		S 6° W	4·5	4·5	5·5	−18	83	·913	5·9	9	7·32	+ 1·68	6·50	6·35	+ 0·15	6·50	6·35	+ 0·15	1·72	Burdwan.		
2	1	2	9	10	5	1		1	S 58° E	5·1	5·6			73	·810	5·0	5	5·21	− 0·21	3·29	3·60	− 0·31	3·29	3·60	− 0·31	1·36	Naya Dumka.		
5		1	11	3	11				S 49° E	4·5	4·8	5·5	−13	83	·907	5·1	7	7·74	− 0·74	2·77	5·41	− 2·64	2·77	5·41	− 2·64	0·82	Berhampore.		
23				3	2	2	1		S 3° W	2·8	2·8			83	·885	3·2	12	7·74	+ 4·26	7·75	5·54	+ 2·21	7·75	5·54	+ 2·21	1·64	Rampur Boalia.		
		4	15	5	3	1	2	1	S 77° E	2·3	2·1			81	·837	4·2	6	5·58	+ 0·42	4·20	3·85	+ 0·35	4·20	3·85	+ 0·35	1·30	Malda.		
6	1	1	14	2	6	1			S 68° E	5·9†	7·0†			86	·810	3·4	14	9·77	+ 4·23	10·93	8·04	+ 2·89	10·93	8·04	+ 2·89	3·13	Bogra.		
	1	12	12	2	3	1			N 79° E	5·2	4·9			84	·811	6·8	10	8·23	+ 1·77	7·80	8·45	− 0·65	7·80	8·45	− 0·65	2·07	Dinajpur	North Bengal.	12
3		8	17	1	1	1			N 83° E	3·3	3·5			85	·811	3·6	16	11·19	+ 4·81	14·66	10·31	+ 4·35	14·66	10·31	+ 4·35	2·68	Rangpur.		
	6	10	9	3	1			2	N 57° E	1·8	2·3			83	·785	2·1	13	12·42	+ 0·58	12·52	12·04	+ 0·48	12·52	12·04	+ 0·48	2·28	Jalpaiguri.		
18	2	1	8	2					N 84° E	1·4	1·5			87	·834	5·7	14	14·76	− 0·76	16·80	15·26	+ 1·54	16·80	15·26	+ 1·54	5·41	Cooch Behar.		
4	6	12	10	2		2		1	N 72° E	5·5	4·8	3·4	+41	79	·787	4·0	7	5·34	+ 1·66	4·42	4·77	− 0·35	4·42	4·77	− 0·35	1·80	Purnea	North Bihar.	17
8					10	12		1	S 27° W	5·7				75	·888	3·8	7	7·74	− 0·74	5·76	5·97	− 0·21	5·76	5·97	− 0·21	1·69	Balasore	Orissa.	14
				2	11	13	4	1	S 32° W	13·2	12·7	12·6	+ 1	82	1·011	6·3	6	4·32	+ 1·68	3·43	5·23	− 1·80	3·43	5·23	− 1·80	1·75	False Point.		
7				1	7	14	2		S 31° W	3·8		5·1	−25	76	·938	5·2	6	5·23	+ 0·77	2·71	4·24	− 1·53	2·71	4·24	− 1·53	0·94	Cuttack.		
4				1	7	18	1		S 33° W	15·0	14·1			87	1·042	4·1	?	3·39	?	?	2·89	?	?	2·89	?		Puri.		
																				1·81	1·63	+ 0·18					V.—Gangetic Plain and Chota Nagpur.		
			1	2	10	13	3	2	S 30° W	9·8	8·7	8·8	− 1	53	·578	2·9	8	3·93	+ 4·07	3·70	2·33	+ 1·37	3·70	2·33	+ 1·37	0·96	Hazaribagh.	Chota Nagpur.	15
	1		2	1	13	11	1	2	S 23° W	6·9	8·2			59	·655	3·8	7	4·68	+ 2·32	2·92	2·08	+ 0·84	2·92	2·08	+ 0·84	0·90	Ranchi.		
20	2	1	5			2	1		N 72° E	4·6	5·5			45	·571	0·7	0	2·07	− 2·07	0	1·04	− 1·04	0	1·04	− 1·04	0	Daltonganj.		
27			2	1	1				S 56° E	1·4	1·8			70	·810	3·0	7	5·26	+ 1·74	4·90	2·92	+ 1·98	4·90	2·92	+ 1·98	1·26	Purulia.		
15		2			1	8	5		S 61° W	2·0	1·8			75	·862	2·1	11	5·65	+ 5·35	8·06	3·34	+ 4·72	8·06	3·34	+ 4·72	1·60	Chaibasa.		
	2	13	7	3	1	4	1		N 72° E	4·5	4·0	3·9	+ 3	70	·898	2·5	2	1·94	+ 0·06	0·61	0·98	− 0·37	0·61	0·98	− 0·37	0·27	Gaya	South Bihar.	16
	2	4	12	5	3	1	4		S 82° E	9·3	8·3			84*	·673*	3·9	1	1·47	− 0·47	0·31	0·82	− 0·51	0·31	0·82	− 0·51	0·30	Dehri.		
		6	18	2	2		3		N 87° E	9·0§	10·2§	4·8	+113	65	·784	1·6	2	2·57	− 0·97	1·22	1·93	− 0·71	1·22	1·93	− 0·71	1·04	Patna.		
11	2	2	2	2		2	5	5	N 51° W	4·6	4·8			62	·750	1·1‖	3	2·45	+ 0·55	1·51	1·47	+ 0·04	1·51	1·47	+ 0·04	1·11	Arrah.		
		3	24				4		N 85° E	14·6	13·3			57	·692	2·4	1	1·97	− 0·97	0·20	0·82	− 0·62	0·20	0·82	− 0·62	0·12	Buxar.		
5	1	3	16	6					S 87° E	6·5	6·1			69	·775	4·9	2	4·16	− 2·16	1·49	2·79	− 1·30	1·49	2·79	− 1·30	1·25	Bhagalpur	North Bihar.	17
1		2	15	11	1		1		S 73° E	5·1		5·9	−14	76	·819	3·7	3	3·93	− 0·93	3·69	3·07	+ 0·62	3·69	3·07	+ 0·62	1·95	Darbhanga.		
1		4	15	10				1	S 81° E	7·2				74	·824	1·5	4	3·65	+ 0·35	1·37	2·40	− 1·03	1·37	2·40	− 1·03	0·69	Muzaffarpur.		
	1	6	22	2					N 82° E	6·7	6·5			76	·776	1·6	5	4·25	+ 0·75	4·23	2·65	+ 1·58	4·23	2·65	+ 1·58	1·50	Motihari.		
2		1	23	3		1		1	S 88° E	5·3	4·7			64	·754	2·1	3	2·13	+ 0·87	1·04	1·35	− 0·31	1·04	1·35	− 0·31	0·60	Chapra.		
7	1	7	10	2		2		2	N 71° E	3·7	4·2	5·2	−19	57	·731	2·5	1	1·00	0	0·63	0·64	− 0·01	0·63	0·64	− 0·01	0·63	Benares	United Provinces East.	18
	1	6	13	2	2		5	2	N 76° E	6·8	7·8	6·2	+26	49	·656	2·3	2	0·50	+ 1·50	0·64	0·29	+ 0·35	0·64	0·29	+ 0·35	0·42	Allahabad.		
3	3	14	8	1		1		1	N 55° E	3·2		3·9	−18	70	·764	3·1	3	2·40	+ 0·60	0·79	1·34	− 0·55	0·79	1·34	− 0·55	0·34	Gorakhpur	United Provinces (East Submontane)	23
1	3	1	17	1	4		4		S 86° E	3·4	3·7	4·3	−14	55	·696	1·6	1	1·50	− 0·50	0·79	1·01	− 0·22	0·79	1·01	− 0·22	0·70	Lucknow	South Oudh.	19
3		1	6	19				2	S 60° E	4·5	4·2			58	·752	5·3	3	2·50	+ 0·50	1·55	1·95	− 0·40	1·55	1·95	− 0·40	0·92	Bahraich	North Oudh.	20
2	1	3	8	9	1	1	3	3	S 75° E	4·7				50	·675	3·9	1	1·00	0	0·25	0·31	− 0·06	0·25	0·31	− 0·06	0·22	Cawnpore	United Provinces (Central).	2
7	1		5	1	5		11	1	S 56° W	2·4	2·4			37	·522	4·3	0	1·10	− 1·10	0	0·43	− 0·43	0	0·43	− 0·43	0	Mainpuri.		

† Mean of 17 days. § Mean of 15 days. ‖ Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 224 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-eistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas				−·004								102·7	0	76·6	+ 2·1	89·7	+ 1·1	26·2					43·2
24	United Provinces, (West Submontane).	Bareilly	568	29·113	+·011	29·640	29·285	4th	29·020	25th	·265	86·1	102·8	−0·4	76·3	+1·9	90·6	+0·8	24·5	108·0	1st, 20th & 21st.	69·2	3rd	38·8
		Dehra Dun	2,233	27·493	0	29·649	27·650	4th	27·399	26th	·251	79·6	95·3	+0·3	71·8	+1·3	83·5	+0·8	23·5	102·0	21st	63·5	27th	38·5
		Roorkee	899	28·778	+·007	29·634	28·947	4th	28·652	26th	·295	84·3	101·1	−1·7	74·9	+0·3	88·0	−0·7	26·2	108·7	8th	68·2	11th	40·5
22	United Provinces West.	Meerut	738	28·919	−·010	29·614	29·072	4th	28·805	26th	·267	85·7	103·8	+0·8	77·1	+1·2	90·5	+1·0	26·7	109·2	26th	68·8	4th.	40·4
26	South-East Punjab.	Delhi	718	28·945	−·006	29·617	29·098	4th	28·819	26th	·279	87·3	104·5	−0·2	81·7	+1·5	93·1	+0·7	22·8	111·2	25th & 26th.	70·1	11th	41·1
28	Central Punjab.	Lahore	702	28·932	−·008	29·593	29·082	3rd	28·771	25th	·311	87·1	105·7	0	77·1	+4·5	91·4	+2·3	28·6	114·4	24th & 25th.	67·4	15th	47·0
27	South Punjab	Sirsa	662	28·987	−·001	29·604	29·119	4th	28·872	25th	·247	86·1	105·4	−1·8	79·0*	+1·6*	92·2*	−0·1	26·4	114·3	25th	67·1	11th	47·2
		Patiala	818	28·835		29·609	28·989	4th	28·733	25th	·256	86·7	101·9		76·6		89·2		25·3	109·0	24th	67·9	16th	41·1
29	Punjab (Submontane).	Ludhiana	812	28·833	−·009	29·605	28·980	4th	28·704	25th	·276	85·0	102·0	−2·4	77·7	+2·3	89·9	−0·1	24·3	110·4	9th	69·1	11th	41·3
		Sialkot	830	28·805	−·014	29·593	28·961	3rd	28·651	9th	·310	87·3	105·2	+2·1	78·9	+4·1	92·1	+3·1	26·3	113·4	22nd	67·6	15th	45·8
		Umballa	892	28·765	+·009	29·613	28·921	4th	28·664	26th	·257	85·7	103·4	−1·8	74·1	?	88·8	?	29·3	111·9	20th	66·5	4th	45·4
31	North Punjab	Rawalpindi	1,674	27·992	−·018	29·620	28·122	3rd	27·841	9th	·281	84·9	101·5	+ 3·4	71·6	+3·0	86·6	+3·2	30·9	111·5	22nd	60·1	3rd	51·4
	VII.—N.-W. Frontier Province, Indus Valley and North-West Rajputana.				−·006								106·5	+ 2·0	79·2	+ 1·9	92·9	+ 1·9	27·3					47·6
31	North Punjab	Peshawar	1,110	28·573	−·018	29·649	28·688	4th	28·401	9th	·287	87·2	102·7	+4·1	72·7	+2·7	87·7	+3·4	30·0	113·0	21st	62·0	3rd	51·0
32	West Punjab	Khushab	612	29·032	?	29·603	29·182	11th	28·833	9th	·349	90·1	106·6	+1·7	77·7	+0·4	92·2	+1·1	28·9	114·4	9th	67·2	3rd	47·2
		Montgomery	558	29·071	?	29·584	29·208	4th	28·922	25th	·286	91·5	106·5	−1·8	78·1	?	92·3	?	28·4	115·5	7th	64·5	11th	51·0
		D. I. Khan	590	29·060	−·021	29·592	29·263	11th	28·855	9th	·348	87·9	106·8	+2·6	76·5	+1·6	91·7	+2·1	30·3	116·2	22nd	66·1	3rd	50·1
		Mooltan	420	29·203	−·019	29·584	29·340	4th	29·044	9th	·296	89·9	109·4	+2·8	81·6	+4·0	95·5	+3·4	27·8	117·0	7th & 31st.	71·5	3rd	45·5
47	Sind	Jacobabad	186	29·443	−·015	29·587	29·557	3rd	29·321	9th	·236	90·8	115·1	+5·5	86·7	+2·5	97·9	+3·0	34·4	122·5	22nd	69·1	2nd	53·4
		Hyderabad	96	29·598	+·005	29·646	29·700	2nd	29·480	8th	·220	87·0	107·0	+0·1	78·9	+0·5	93·0	+0·3	28·1	114·6	5th	59·0?	14th	55·6
		Kurrachee	30	29·712	+·004	29·692	29·811	2nd	29·302	13th	·509	84·9	93·3	+0·4	81·1	+2·4	87·2	+1·4	12·2	106·4	5th	78·7	13th	31·7
51	West Rajputana	Bikaner	771	28·894	+·003	29·616	28·999	3rd	28·777	8th	·222	91·4	108·6	+1·5	84·1	+1·5	96·4	+1·5	24·5	113·4	29th	69·5	15th	43·9
		Pachpadra	380	29·344	+·018	29·677	29·428	16th	29·244	28th	·184	86·3	108·7	+0·9	79·1	+1·6	95·9	+1·3	29·6	116·5	6th	73·0	4th	43·5
		Jodhpur	782	28·9·0		29·684	29·021	19th	28·849	8th	·172	86·7	106·6		80·2		93·4		26·4	114·3	6th	63·3	14th	51·0
	VIII.—East Rajputana, Central India and Gujarat.				+·012								103·5	+ 0·4	80·4	+ 1·3	92·0	+ 0·9	23·1					35·7
50	East Rajputana	Jaipur	1,431	28·699	+·007	29·662	28·403	4th	28·201	26th	·202	55·8	106·9	+0·3	79·0	+0·8	93·0	+0·6	27·9	111·2	4 days.	68·1	15th	43·1
		Bharatpore†	...	29·083			29·245	11th	28·987	26th	·258	59·8	108·7		81·7		95·2		27·0	114·8	25th	70·0	7th	44·8
		Kotah	819	28·885		29·684	28·977	15th	28·817	26th	·160	94·1	109·0		86·6		97·8		22·4	113·1	25th & 29th.	75·6	12th	37·5
		Sambhar	1,254	28·464	?	29·660	28·569	4th	28·367	26th	·202	88·3	106·5	+1·4	80·4	+0·2	93·5	+0·8	26·1	110·5	4 days	69·0	15th	41·5
		Ajmer	1,611	28·129	+·002	29·680	28·218	19th	28·037	8th	·181	86·2	102·6	−1·2	81·0	+1·7	91·8	+0·3	21·6	108·4	7th	70·6	11th	37·8
		Udaipur	1,925	27·865		29·706	27·937	5th	27·789	9th	·148	88·6	101·9		80·0		91·0		21·9	108·1	7th	70·3	9th	37·8
		Deesa	466	29·314	+·011	29·732	29·389	19th	29·229	8th	·160	84·8	108·3	+1·6	78·3	+0·8	93·3	+1·2	30·0	115·1	6th	70·5	7th	44·6
46	Kathiawar and Cutch.	Bhuj	395	29·383	+·023	29·729	29·465	19th	29·249	13th	·216	85·5	101·2	−0·1	77·4‡	+0·6‡	89·5‡	+0·3‡	23·8	110·8	6th	71·9	8th	38·9
		Jamnagar	61	29·741		29·748	29·815	19th	29·621	8th	·194	86·5	98·0		77·8		87·9		20·2	105·2	4th & 6th.	73·7	14th & 27th.	31·5
		Rajkot	428	29·381	+·022	29·760	29·451	15th	29·290	8th	·161	84·4	105·4	0	76·1	+1·0	90·8	+0·5	29·3	110·9	6th	70·8	7th	40·1
		Veraval	8	29·818	+·009	29·778	29·895	15th & 16th.	29·720	13th	·175	83·7	87·3	+0·6	80·5	+2·1	83·9	+1·4	6·8	89·6	7th	76·3	6th & 19th.	13·3
		Dwarka	37	29·778		29·761	29·844	19th	29·616	13th	·228	84·0	88·7		80·8		84·8		7·9	90·4	6th	77·2	14th	13·2
		Bhavnagar Para.	55	29·780	?	29·781	29·853	15th	29·711	29th	·142	86·8	107·3	?	79·5	+0·7	93·4	?	27·8	112·2	25th	74·8	14th	37·4
43	Central India	Nowgong	757	28·936	+·001	29·632	29·054	4th	28·840	29th	·214	91·8	107·9	+0·5	81·6	+1·8	94·8	+1·2	26·3	113·0	25th	74·0	1st	39·0
		Indore	1,823	27·980	+·028	29·722	29·045	15th	27·910	9th	·135	85·9	103·5	+0·7	77·5	+1·6	90·5	+1·2	26·0	108·8	6th	71·1	5th & 10th.	37·7

* Mean of 29 days. † Observations for 25 days. ‡ Mean of 28 days.

I—*continued.*

in India, Burma, etc., in May, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible)	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st May, 1902.	Normal rainfall for period, 1st to 31st May.	Variation from normal of period, 1st to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				1·01	0·91	+0·16					VI.—Upper Sub-Himalayas.		
7		4	11	3		1	1	4	N 75° E	2·9	2·8	5·2	− 46	54	·685	1·5	1	2·27	−1·27	0·26	0·76	−0·50	0·26	0·76	− 0·50	0·22	Bareilly	United Provinces (West Submontane).	24
9		4	2	1		5	7	3	N 84° W	2·6		2·5	+ 4	46	·465	2·7	3	3·40	−0·40	0·99	1·69	−0·70	0·99	1·69	− 0·70	0·46	Dehra Dun.		
9			2	15		2	1	2	S 40° E	3·7		3·7	0	45	·513	1·4	2	2·10	−0·10	1·40	0·82	+0·58	1·40	0·82	+ 0·58	0·72	Roorkee.		
13		1	4	4	1	3	5		S 5° E	1·8	1·8	2·6	− 31	43	·521	2·3	1	1·50	−0·50	0·56	0·60	−0·04	0·56	0·60	− 0·04	0·56	Meerut	United Provinces, West.	22
6		3	2	6		3	9	2	S 53° W	4·9	4·5	4·5	0	41	·510	2·1	1	2·20	−1·20	0·44	0·72	−0·28	0·44	0·72	− 0·28	0·37	Delhi	South-East Punjab,	26
10	3	1	3	6	1		5	2	S 85° E	3·1		3·3	− 6	43	·530	2·2	2	1·50	+0·50	0·73	0·82	−0·09	0·73	0·82	− 0·09	0·18	Lahore	Central Punjab,	28
	4	6	4	2	3	6	4	2	N	7·5	6·8	4·8	+ 42	44	·555	0·5	3	1·60	+1·40	1·66	0·71	+0·95	1·66	0·71	+ 0·95	0·87	Sirsa	South Punjab.	27
	2	1	5	14	3	2	1	3	S 48° E	6·3	6·3			46	·573	1·7	2			0·49			0·49			0·26	Patiala.		
3		2	2	15	2	2	4	1	S 36° E	3·0	2·8	2·2	+ 27	41	·474	1·3	3	1·60	+1·40	2·17	0·61	+1·56	2·17	0·61	+ 1·56	1·14	Ludhiana	Punjab (Submontane).	29
8	4	4	10	3	1			1	N 73° E	2·7		2·5	+ 8	46	·584	0·9	2	2·30	−0·30	1·29	1·03	+0·26	1·29	1·03	+ 0·26	0·94	Sialkot.		
6			6	14			2	3	S 57° E	8·3				45	·546	1·6	2	1·70	+0·30	0·85	0·73	+0·12	0·85	0·73	+ 0·12	0·48	Umballa.		
18	1	2	2	1	1		2	4	N 10° W	3·6	3·3	2·8	+ 18	33	·382	1·6	3	3·00	0	1·32	1·47	−0·15	1·32	1·47	−0·15	0·62	Rawalpindi.	North Punjab.	31
																				0·34	0·42	−0·08					VII.—N.-W. Frontier Province, Indus Valley and North-West Rajputana.		
19	1	1	3		1		3	3	N 27° W	4·2	4·6	4·8	− 9	40	·501	1·9	0	1·60	−1·60	0·10	0·75	− 0·65	0·10	0·75	− 0·65	0·07	Peshawar	North Punjab.	31
4	4	7	4	4	4	1	1	2	N 72° E	6·4	7·4			38	·516	1·1	1	1·20	−0·20	0·34	0·78	− 0·44	0·34	0·78	− 0·44	0·20	Khushab	West Punjab.	32
1	1	1	3	7	6	7	1	4	S 13° W	8·7	7·5			29	·405	0·7	2	1·00	+1·00	0·50	0·27	+ 0·23	0·50	0·27	+ 0·23	0·30	Montgomery.		
18	2	6		1	1			3	N 23° E	2·2	2·3	2·3	0	48	·629	0·7	1	1·00	0	0·13	0·34	− 0·21	0·13	0·34	− 0·21	0·13	D. I. Khan		
7	2	6		5	1	8	1	1	S 8° E	2·4	3·0	2·9	+ 3	43	·598	0·8	0	0·80	−0·80	0·13	0·30	− 0·17	0·13	0·30	− 0·17	0·08	Mooltan.		
9	2	3	1	11	4			1	S 52° E	4·3	4·5	4·7	− 4	56	·787	0·5	0	0·30	−0·30	0·06	0·16	− 0·10	0·06	0·16	− 0·10	0·06	Jacobabad	Sind.	47
2			1		4	23			S 37° W	2·4	12·9	12·7	+ 2	55	·689	0·8	1	0·30	+0·70	0·52	0·18	+ 0·34	0·52	0·18	+ 0·34	0·52	Hyderabad.		
		1			1	12	15	2	S 74° W	13·7	17·1	17·5	− 2	79	·938	2·8	2	0	+2·00	1·85	0	+ 1·85	1·85	0	+ 1·85	1·21	Kurrachee.		
2	1		1	2	6	5	11	3	S 60° W	9·8		6·5	+ 51	42	·619	0·7	0	1·50	−1·50	0·07	0·88	− 0·81	0·07	0·88	− 0·81	0·04	Bikaner	West Rajputana	51
	1				13	14	3		S 31° W	14·9	13·3	8·8	+ 51	65	·805	0	0	1·10	−1·10	0	0·66	− 0·66	0	0·66	− 0·66	0	Pachpadra.		
1		1	1		6	17	5		S 41° W	8·6	7·7			48	·607	1·1	0	1·20	−1·20	0	0·27	− 0·27	0	0·27	− 0·27	0	Jodhpur.		
																				0·25	0·38	−0·13					VIII.—East Rajputana, Central India and Gujarat.		
1	2	1	3			9	10	5	S 90° W	5·5		6·9	− 20	35	·476	1·1	2	1·50	+0·50	0·61	0·49	+ 0·12	0·61	0·49	+ 0·12	0·41	Jaipur	East Rajputana.	50
1	2	2	3	1	1	4	7	3	N 82° W	4·7§	4·3§			46¶	·677¶	1·8	2			0·30			0·30			0·12	Bharatpore.		
3	3		2	1		8	8	6	N 87° W	7·8	9·2			30	·460	0	1	1·20	−0·20	0·36	1·11	− 0·75	0·36	1·11	− 0·75	0·36	Kotah.		
7	1		1	1		2	15	4	N 84° W	10·5		9·9	+ 6	35	·466	1·8	2	1·60	+0·40	0·78	0·76	+ 0·02	0·78	0·76	+ 0·02	0·57	Sambhar.		
1		1		3		4	18	4	S 86° W	9·8		7·1	+ 38	48	·597	1·0	3	1·50	+1·50	1·45	0·61	+ 0·84	1·45	0·61	+ 0·84	1·05	Ajmer.		
3		1			1	10	10	6	S 81° W	7·7	7·8			53	·705	0·7	2	1·70	+0·30	0·63			0·63			0·45	Udaipur.		
					10	17	3	1	S 36° W	13·6		13·4	+ 1	64	·767	1·6	0	0·55	−0·55	0·02	0·25	− 0·23	0·02	0·25	− 0·23	0·02	Deesa.		
	1				1	10	17	2	S 77° W	22·5		15·4	+ 46	72	·874	1·3	1	0·30	+0·70	0·15	0·09	+ 0·06	0·15	0·09	+ 0·06	0·15	Bhuj	Kathiawar and Cutch.	46
					7	16	7	1	S 47° W	19·4	23·1			68	·853	2·1	0			0			0			0	Jamnagar.		
	2				2	9	15	3	S 80° W	16·4	16·2	14·6	+ 11	65	·790	1·5	0	0·60	−0·60	0	0·22	− 0·22	0	0·22	− 0·22	0	Rajkot.		
	2				5	16	5	3	N 56° W	10·4	10·4	9·5	+ 9	84	·968	2·2	0	0·10	−0·10	0	0·02	− 0·02	0	0·02	− 0·02	0	Veraval.		
					1	13	14	3	S 72° W	19·5				80	·915	3·7	0			0·04			0·04			0·03	Dwarka.		
	2			2	1	12	11	3	N 72° W	13·8*	13·0*			57	·724	2·6	1	0·60	+0·40	0·13	0·10	+ 0·03	0·13	0·10	+ 0·03	0·13	Bhavnagar Para.		
3			4	2	1	5	14	2	S 71° W	3·1	3·1	3·4	− 9	32	·479	4·1	0	0·90	−0·90	0	0·33	− 0·33	0	0·33	− 0·33	0	Nowgong	Central India	49
1	2				1	2	21	4	N 84° W	8·9	7·2	6·1	+ 18	53	·663	1·1	0	1·20	−1·20	0·10	0·59	− 0·49	0·10	0·59	− 0·49	0·05	Indore.		

§ Mean of 19 days.

¶ Mean of 15 days.

Table

Abstract of Observations taken at 8 A.M. at 224 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
		Neemuch	1,630	28·148	+·022	29·711	28·224	19th	28·059	9th	·165	86·9	104·7	+0·7	78·6	+1·5	91·7	+1·1	26·1	109·6	7th	69·5	15th	40·1
45	Gujarat	Surat	39	29·811	+·024	29·792	29·872	15th & 16th.	29·749	7th	·123	87·4	98·1	−0·1	80·3	+2·2	89·2	+1·1	17·8	104·7	20th & 21st.	77·1	4th & 21st.	27·6
		Ahmedabad	163	29·646	+·009	29·756	29·716	15th	29·571	9th	·145	87·2	108·0	+0·9	80·8	+1·3	94·4	+1·1	27·2	115·4	6th	77·1	14th	38·3
22	United Provinces, West.	Agra	555	29·120	−·010	29·625	29·261	11th	29·016	26th	·245	90·3	106·6	−0·6	83·1	+1·6	94·9	+0·5	23·5	112·5	25th	78·4	12th & 15th.	34·1
21	United Provinces, Central.	Jhansi	858	28·847	+·002	29·642	28·965	11th	28·730	29th	·235	92·8	109·3	+1·0?	87·1	+3·5?	98·3	+2.3?	22·2	113·9	24th	78·6	12th	35·3
	IX.—Deccan				+·009								106·3	+1·9	80·0	+1·8	93·2	+1·9	26·2					37·8
38	Bombay (Deccan)	Belgaum	2,539	27·346	+·024	29·798	27·405	14th	27·273	25th	·132	77·1	94·5	+1·5	69·1	+0·9	81·8	+1·2	25·4	98·3	1st & 24th.	65·8	11th	32·5
		Sholapur*	1,590	28·242	+·011	29·758	28·297	14th	28·153	25th	·144	85·5	106·1†	+1·4†	79·3†	+2·8†	92·8†	+2·1†	26·8	109·2	3rd & 26th, 2nd	74·0	10th	35·2
		Poona	1,840	28·022	+·010	29·794	28·081	16th	27·968	29th	·113	81·2	101·6	+2·4	72·7	+0·8	87·2	+1·6	28·9	106·0		69·4	15th	36·6
		Bijapur	1,946	27·915	+·017	29·780	27·970	14th	27·850	25th	·120	82·9	103·2	+2·9	74·9	+0·2	89·1	+1·6	28·3	107·5	21st	71·3	10th	36·2
40	Khandesh	Malegaon	1,430	28·393	?	29·751	28·454	12th	28·323	28th	·131	83·2	106·4	+2·4	76·3	+1·2	91·4	+1·8	30·1	110·8	6th	72·0	1st & 3rd	38·8
		Ahmednagar	2,152	27·717	+·024	29·775	27·774	14th	27·654	25th	·120	84·6	102·8	+3·4	73·3	+1·5	88·1	+2·5	29·5	105·9	7th & 21st.	66·9	10th	39·0
41	Berar	Akola	930	28·849	+·015	29·709	28·913	4th	28·775	27th	·138	90·8	109·6	+1·9	83·1	+2·0	96·4	+2·0	26·5	113·5	20th & 21st.	77·4	6th	36·1
		Amraoti	1,215	28·555	+·017	29·695	28·644	4th	28·475	25th	·169	92·2	108·9	+1·2	82·6	+2·6	95·8	+1·9	26·3	113·0	20th	75·5	13th	37·5
42	Central Provinces (West).	Khandwa	1,044	28·739	+·018	29·724	28·814	12th	28·670	27th	·144	88·6	107·7	+1·2	82·8	+1·9	95·2	+1·6	24·9	114·2	7th	72·6	10th	41·6
		Hoshangabad	1,006	28·753	+·007	29·697	28·824	15th	28·676	27th	·148	90·8	109·1	+1·5	81·4	+1·1	95·3	+1·3	27·7	113·0	20th & 25th.	75·2	4th & 12th.	37·8
		Nagpur	1,025	28·714	+·011	29·669	28·831	4th	28·618	25th	·213	93·3	110·7	+1·4	84·7	+2·8	97·7	+2·1	26·0	114·2	21st	75·1	6th & 12th.	39·1
43	Central Provinces (Central).	Chanda	634	29·159‡?	?	29·722‡?	29·249	4th	29·081	8th	·168	94·7	111·5	+2·0	82·6	+0·7	97·1	+1·4	28·9	114·2	4 days	67·0	4th	47·2
		Seoni	2,033	27·735	+·004	29·649	27·836	4th	27·654	25th	·182	91·7	105·7	+1·8	78·3	+1·2	92·0	+1·5	27·4	108·9	22nd	68·0	1st	40·9
		Jubbulpore	1,327	28·392	−·003	29·647	28·507	4th	28·314	27th	·193	90·0	107·1	+1·5	79·6	+0·7	93·4	+1·1	27·5	112·0	25th	72·1	1st	39·9
		Saugor	1,807	27·949	+·014	29·665	28·035	4th	27·876	27th	·159	90·1	105·1	0	81·3	+2·8	93·2	+1·4	23·8	109·0	20th	75·1	12th	33·9
49	Central India	Sutna	1,040	28·650	0	29·627	28·774	4th	28·550	25th	·224	92·0	107·1	+1·6?	81·8	+2·5?	94·4	+2·1?	25·3	111·6	30th	74·1	1st	37·5
44	Central Provinces (East).	Raipur	970	28·742	−·005	29·635	28·895	4th	28·629	25th	·266	93·9	109·2	+1·8	84·1	+2·1	96·7	+2·0	25·1	114·5	26th	75·9	6th & 12th.	38·6
		Sambalpur	486	29·229	−·003	29·655	29·406	4th	29·072	25th	·334	90·9	108·4	+1·5	83·2	+1·6	95·8	+1·6	25·2	114·1	26th	69·7	1st	44·4
39	Hyderabad (North).	Aurangabad	1,905	27·938		29·750	28·002	15th	27·880	29th	·122	86·9	104·4		76·1		90·2		28·3	107·6	6th, 21st & 22nd.	70·2	16th	37·4
		Indur										92·1	108·1		82·1		95·2		26·0	111·2	26th	77·1	15th	34·1
		Bidar	2,165	27·671		29·721	27·732	3rd	27·576	26th	·156	88·9	103·8		79·9		91·8		23·9	108·2	26th	72·1	4th	36·1
53	Hyderabad (South).	Gulbarga	1,503	28·322	+·002	29·745	28·384	14th	28·238	26th	·146	87·9	107·2	+2·4	81·1	+2·6	94·1	+2·5	26·1	110·6	20th	73·8	2nd	36·8
		Raichur	1,326	28·496	+·009	29·753	28·577	14th	28·417	25th	·160	86·9	105·0	+1·6	81·0	+1·5	93·0	+1·6	24·0	110·0	20th & 26th.	76·1	31st	33·9
		Hyderabad (Deccan).	1,690	28·115	+·005	29·713	28·203	3rd	28·031	26th	·172	89·4	105·8	+2·0	83·1	+4·5	94·5	+3·3	22·7	109·9	26th	75·7	4th.	34·2
		Secunderabad	1,787	28·024	?	29·720	28·111	3rd	27·934	26th	·177	87·5	107·1	+3·2	81·8	+3·2	94·5	+3·2	25·2	110·8	27th	74·0	4th	36·8
		Hanumkonda	871	28·890		29·687	29·012	4th	28·789	28th	·223	90·7	107·5		84·4		96·0		23·1	112·7	26th	73·3	4th	39·4
	X.—West Coast				+·014								90·9	+1·5	80·8	+1·5	85·9	+1·5	10·2					16·5
37	Konkan	Bombay	37	29·842	+·020	29·818	29·898	15th	29·791	26th	·107	85·8	92·4	+1·7	82·4	+1·7	87·4	+1·7	10·0	94·0	14th & 26th.	79·5	1st	14·5
		Ratnagiri	110	29·776	+·033	29·824	29·833	11th	29·731	25th	·102	86·1	92·3	+1·2	81·9	+2·3	87·1	+1·8	10·4	93·4	10th & 14th.	80·4	1st & 2nd.	13·0
		Mormugao	60	29·829	?	29·823	29·877	15th	29·778	28th	·099	86·4	91·4	+1·4	82·8	+1·7	87·1	+1·6	8·6	98·5?	8th & 27th.	76·4	31st	17·1
		Goa	199	Barometer out of order.								84·8	88·2	?	82·3	+1·8	85·3	?	5·9	89·0	9 days.	76·0	31st	13·0
		Karwar	44	29·843	+·022	29·818	29·892	11th & 14th.	29·791	25th	·101	84·8	91·2	+1·4	81·6	+1·9	86·4	+1·7	9·6	92·8	14th & 31st.	78·0	5th	14·8
33	Malabar	Cochin	10	29·883	+·009	29·821	29·943	15th	29·845	25th	·098	83·4	92·5	+2·9	78·3	+0·7	85·4	+1·8	14·2	95·5	3rd, 4th & 5th.	73·2	8th	22·3
		Calicut	27	29·857	+·003	29·813	29·915	14th	29·800	27th	·115	83·8	91·5	+1·1	78·5	+0·6	85·0	+0·9	13·0	94·4	5th	74·0	26th	20·4
		Mangalore	65	29·823	+·007	29·819	29·882	14th	29·765	27th	·117	84·4	91·2	+0·9	80·2	+1·4	85·7	+1·2	11·0	94·2	5th	73·9	26th	20·3
		Trivandrum	118	29·688	+·001	29·820	29·747	15th	29·631	25th	·116	82·4	87·8	+1·5	78·9	?	83·4	?	8·9	90·0	6 days	76·5	6th	13·5

* Observation of 26 days. † Mean of 24 days.

I—*continued.*

in India, Burma, etc., in May, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind-resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st May 1902.	Normal rainfall for period, 1st to 31st May.	Variation from normal of period, 1st to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
		1	1			13	14	2	S 73° W	14·7	13·2	12·4	+ 6	54	·686	0·6	0	1·00	−1·00	0·03	0·45	− 0·42	0·03	0·45	− 0·42	0·03	Neemuch.		
2	2	1			10	9	7		S 43° W	10·4	9·8	12·7	− 23	66	·865	3·0	0	0·30	−0·30	0	0·13	−0·13	0	0·13	− 0·13	0	Surat	Gujarat.	15
	3				3	17	2	6	S 67° W	4·7	7·7			63	·806	2·8	1	0·50	+0·50	0·40	0·01	+0·39	0·40	0·01	+ 0·39	0·40	Ahmedabad.		
8		1		6		8		8	S 61° W	4·7	5·4	5·9	− 8	44	·602	2·5	0	1·50	−1·50	0·05	0·56	−0·51	0·05	0·56	− 0·51	0·05	Agra	United Provinces West.	22
	1	1	3		2	7	10	7	S 89° W	6·1	6·8	4·8	+ 42	47	·725	1·5	0	0·70	−0·70	0	0·41	−0·41	0	0·41	− 0·41	0	Jhansi	United Provinces, Central.	21
																				0·33	0·89	−0·58					IX.—Deccan.		
2				1	1	9	14	4	S 77° W	18·3		18·1	+ 1	71	·656	4·6	4	4·70	− 0·70	1·95	2·49	− 0·54	1·95	2·49	− 0·54	0·80	Belgaum	Bombay (Deccan).	38
					1	3	3	19	N 61° W	14·1‡	17·1	10·0	+ 71	45	·547	2·5	1	2·00	− 1·00	0·47	1·00	− 0·53	0·47	1·00	− 0·53	0·47	Sholapur.		
					3	19	9		N 82° W	17·3	19·5	14·2	+ 37	55	·587	1·3	0	2·10	− 2·10	0·09	1·33	− 1·24	0·09	1·33	− 1·24	0·09	Poona.		
	2			1	6	14	8		N 84° W					64	·70	3·8	3	3·30	− 0·30	1·09	1·79	− 0·70	1·09	1·79	− 0·70	0·63	Bijapur.		
	1	1			5	14	10		N 77° W	13·2	15·2	10·4	+ 46	39	·519	3·2	0	1·20	− 1·20	0	0·73	− 0·73	0	0·73	− 0·73	0	Malegaon	Khandesh.	40
	8	3		1			19		N 25° W	11·7	14·3			49	·569	1·3	1	1·80	− 0·80	0·17	0·88	− 0·71	0·17	0·88	− 0·71	0·17	Ahmednagar.		
1					1	7	22		N 58° W	10·3	10·1	8·6	+ 17	44	·628	1·7	0	0·80	− 0·80	0	0·43	− 0·43	0	0·43	− 0·43	0	Akola	Berar.	41
	2			3	5	12	9		N 85° W	9·9	8·8	6·0	+ 47	44	·680	1·8	1	1·50	− 0·50	0·29	0·63	− 0·34	0·29	0·63	− 0·34	0·29	Amraoti.		
	1					12	18		N 61° W	12·2		9·1	+ 34	44	·575	1·2	1	0·80	+ 0·20	0·49	0·35	+ 0·14	0·49	0·35	+ 0·14	0·43	Khandwa	Central Provinces (West).	42
		2			26		3		S 52° W	4·2	4·3	3·8	+ 13	44	·637	0·7	1	1·00	0	0·52	0·55	− 0·03	0·52	0·55	− 0·03	0·14	Hoshangabad.		
1	4			2	2	2	20		N 50° W	9·8		9·5	+ 3	25	·380	2·3	0	1·40	− 1·40	0·08	0·72	− 0·64	0·08	0·72	− 0·64	0·06	Nagpur.		
3		1	1	3	4	2	8	9	S 88° W	6·4	5·7	4·9	+ 16	39	·634	1·4	1	1·70	− 0·70	0·35	0·74	− 0·39	0·35	0·74	− 0·39	0·35	Chanda	Central Provinces Central).	43
	10	3		1	3	2	2	10	N 29° W	5·5		4·6	+ 20	27	·395	1·1	0	1·90	− 1·90	0·05	0·68	− 0·63	0·05	0·68	− 0·63	0·03	Seoni.		
				3	3	6	13	5	S 73° W	4·3	3·8	4·5	− 16	31	·438	1·1	0	1·30	− 1·30	0·08	0·55	− 0·47	0·08	0·55	− 0·47	0·06	Jubbulpore.		
			1	1	2	2	24	1	S 82° W	7·4	8·4	4·4	+ 91	36	·515	1·8	0	1·00	− 1·00	0·02	0·50	− 0·48	0·02	0·50	− 0·48	0·02	Saugor.		
1	2	1	4	2		5	11	5	N 83° W	6·3	6·7	8·1	− 17	35	·525	2·2	0	1·10	− 1·10	0	0·38	− 0·38	0	0·38	− 0·38	0	Sutna	Central India	49
4	3	1	1		2	12	2	6	S 78° W	8·5	7·8	7·4	+ 5	28	·433	1·9	0	2·30	− 2·30	0·20	0·94	− 0·74	0·20	0·94	− 0·74	0·07	Raipur	Central Provinces (East).	41
	1	1	1	11	6	8	2	1	S 3° E	5·6	5·5	3·0	+ 83	57	·824	0·8	0	3·00	− 3·00	0·10	1·62	− 1·52	0·10	1·62	− 1·52	0·06	Sambalpur.		
1	2				3	16	9		N 75° W	16·6§	16·4§			42	·527	1·0	0	1·60	− 1·60	0·09	0·74	− 0·65	0·09	0·74	− 0·65	0·09	Aurangabad.	Hyderabad (North).	33
1	2	2	1		5	2	18		N 51° W	8·3	6·9			40	·598	2·5	0	1·20	− 1·20	0	0·39	− 0·39	0	0·39	− 0·39	0	Indur.		
	7	5		1	1	14	1	2	N 88° W	10·1	8·5			50	·683	0	1	2·50	− 1·50	0·26	1·00	− 0·74	0·26	1·00	− 0·74	0·16	Bidar.		
2	5	2	1		2	2	5	12	N 47° W	12·4	11·9			56	·741	2·4	1	2·50	− 1·50	0·27	1·16	− 0·89	0·27	1·16	− 0·89	0·12	Gulbarga	Hyderabad (South).	53
1	1		2		9	4	14		N 76° W	12·7	12·0			52	·671	1·9	1	1·80	− 0·80	0·13	0·72	− 0·59	0·13	0·72	− 0·59	0·13	Raichur.		
8	1			1			12	9	N 70° W	5·5	5·3			45	·614	3·7	1			0·27	0·99	− 0·72	0·27	0·99	− 0·72	0·20	Hyderabad (Deccan).		
	2		1	1	1	2	8	16	N 62° W	9·0		7·4	+ 22	48	·624	1·5	3	2·10	+ 0·90	0·88	0·99	− 0·11	0·88	0·99	− 0·11	0·35	Secunderabad.		
2	2			6	8	2	2	9	S 44° W	11·6	9·9			42	·600	3·7	1	1·00	0	0·69			0·69			0·69	Hanumkonda.		
																				2·31	5·14	−2·83					X.—West Coast.		
	2	3			2	6	10	8	S 81° W	8·7		9·9	− 12	72	·901	4·0	0	0·70	−0·70	0	0·71	− 0·71	0	0·71	− 0·71	0	Bombay	Konkan.	37
1	4	1			2	6	17		N 51° W	7·1	7·0	11·2	− 38	69	·863	3·6	0	1·50	−1·50	0·01	1·45	− 1·44	0·01	1·45	− 1·44	0·01	Ratnagiri.		
5	7	1			2	1	15		N 36° W	8·8				73	·927	4·0	1			0·18	2·57	− 2·39	0·18	2·57	− 2·39	0·16	Mormugao.		
	13	3	1		1		12		N 14° W					77	·927	4·7	1			0·36	2·33	− 1·97	0·36	2·33	− 1·97	0·25	Goa.		
3	14	4	1			1	1	7	N 7° W	5·9				76	·909	4·0	1	3·60	−2·60	0·23	3·28	− 3·05	0·23	3·28	− 3·05	0·16	Karwar.		
3	10	3			1	4	10		N 27° W	5·3				79	·912	5·0	9	12·90	−3·90	6·43	12·39	− 5·96	6·43	12·39	− 5·96	2·53	Cochin	Malabar.	33
7	8	3	2	2			9		N 9° W	10·3	13·0			79	·919	5·2	7	9·00	−2·00	5·88	7·78	− 1·90	5·88	7·78	− 1·90	2·07	Calicut.		
16	2	1	2	3			7		N 1° W	3·8		4·6	−17	75	·887	6·8	5	6·90	−1·90	3·90	6·66	− 2·76	3·90	6·66	− 2·76	2·64	Mangalore.		
7	9					2	13		N 31° W	5·2				77	·862	5·2	6	10·20	−4·20	3·84	9·05	−5·21	3·84	9·05	− 5·21	1·58	Trivandrum.		

‡ Mean of 17 days.

§ Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 224 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure 8 A.M., in inches.								Temperature of Air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	41.—South India				+·009								99·2	+1·2	78·3	+0·8	88·7	+1·0	20·9					31·8
57	Madras (South)	Pamban	37	29·806		29·769	29·858	4th	29·749	26th	·109	85·9	92·4		80·8		86·6		11·6	93·8	14th	79·2	6th, 17th & 29th.	14·6
		Tinnevelly	168	29·679	?	29·774	29·734	3rd	29·608	25th	·126	87·6	102·1	+1·7	80·1	?	91·1	?	22·0	105·0	12th	71·9	13th	33·1
		Madura	417	29·399	+·015	29·774	29·458	3rd	29·333	26th	·125	86·3	101·7	+1·6	79·0	+1·5	90·4	+1·6	22·7	104·5	8th & 19th.	75·5	5th, 8th & 31st.	29·0
		Periya Kulam	945	28·910			28·962	14th	28·845	26th	·117	82·7	99·6		74·0		84·5		25·6	101·8	10th & 11th.	71·1	13th.	30·7
34	Madras (South Central).	Salem	940	28·924	?	29·798	28·981	14th	28·867	25th	·114	82·8	99·5	+0·3	75·4	−0·5	87·5	−0·1	24·1	105·2	8th	70·0	14th & 18th.	35·2
		Coimbatore	1,348	28·514	+·008	29·801	28·585	14th	28·458	28th	·127	80·5	95·3	+0·3	74·4	+1·0	84·9	+0·7	20·9	99·9	4th & 5th.	69·3	18th	30·6
35	Coorg	Mercara	3,781	26·227	+·028		26·276	15th	26·179	27th	·097	68·5	81·4	+1·1	61·5	−0·4	73·0	+0·4	16·9	85·0	11th	61·1	27th	23·9
36	Mysore	Chitaldroog	2,405	27·485	+·009	29·794	27·569	14th	27·418	27th	·151	78·6	95·8	+1·9	72·6	+1·6	84·2	+1·8	23·2	100·2	20th	65·9	27th	34·3
		Bangalore	3,021	26·914	+·018	29·868	26·984	14th	26·860	25th	·124	76·1	92·3	+1·0	69·4	+0·3	80·8	+0·7	22·9	97·8	7th	61·9	18th	35·9
		Hassan	3,091	26·859	+·015	29·833	26·924	14th	26·804	28th	·120	76·1	89·8	+2·2	67·7	+1·1	78·8	+1·7	22·1	91·9	13th	63·1	26th	31·8
		Mysore	2,518	27·409	+·014	29·832	27·480	14th	27·357	28th	·123	76·8	92·4	+0·3	69·9	+0·3	81·1	+0·3	22·5	95·6	26th	64·0	8th	31·6
56	Madras (East Coast, South).	Negapatam	31	29·798	+·004	29·757	29·856	4th	29·725	26th	·131	87·9	99·1	+1·8	81·8	+1·6	90·5	+1·7	17·3	105·1	25th	77·0	29th	28·1
		Cuddalore	12	29·806	+·011	29·747	29·881	3rd & 4th.	29·719	25th	·162	87·9	99·4	+0·6	81·0	+0·9	90·2	+0·8	18·4	104·2	4 days	77·2	3rd & 5th.	27·0
		Trichinopoly	255	29·587	+·009	29·773	29·654	3rd	29·526	25th	·128	85·9	103·3	+1·5	79·3	+0·6	91·3	+1·1	24·0	105·7	16th	73·4	16th	32·3
		Madras	22	29·781	−·003	29·733	29·877	3rd	29·665	26th	·212	88·6	100·6	+2·1	82·3	+1·2	91·5	+1·7	18·3	108·0	9th	78·0	3rd	30·0
		Vellore	707	29·089?		29·727?	29·177	4th	29·010	26th	·167	86·7	104·0		77·2		90·6		26·8	108·3	13th	67·5	18th	40·8
55	Madras (East Coast, Central).	Nellore	71	29·711	+·008	29·715	29·821	4th	29·605	25th	·216	90·7	106·7	+0·7	82·6	+0·6	94·7	+0·7	24·1	112·3	26th	78·1	3rd	34·2
		Masulipatam	15	29·761	+·005	29·710	29·674	4th	29·646	26th	·228	90·0	102·7	+2·6	82·8	+1·2	92·8	+1·9	19·9	113·2	9th	77·1	22nd	36·1
54	Madras (Central)	Cuddapah	433	29·385	+·007	29·749	29·491	14th	29·294	26th	·197	91·0	107·9	+1·6	84·9	+1·4	96·4	+1·5	23·0	111·3	26th	69·6	22nd	41·7
		Kurnool	923	28·892	+·004	29·743	28·971	14th	28·796	26th	·175	87·8	107·4	+2·6	82·2	+1·2	94·8	+1·9	25·2	112·3	20th, 24th & 26th.	74·5	22nd	37·8
		Bellary	1,475	28·379	+·028	29·784	28·463	14th	28·320	25th	·143	85·2	104·2	+1·8	78·5	+1·0	91·4	+1·4	25·7	108·0	20th, 25th & 26th.	70·2	27th	37·8
52	Madras (East Coast, North.)	Cocanada	26	29·751	+·002	29·712	29·883	4th	29·637	27th	·246	88·5	101·2	+0·5	83·1	+0·3	92·2	+0·4	18·1	110·0	27th	72·0	14th	38·0
		Waltair (Vizag.)	226	29·539	+·002	29·704	29·683	4th	29·410	26th	·273	87·4	92·9	−2·1	82·1	+0·2	87·5	−1·0	10·8	99·9	29th	75·9	12th	24·0
		Gopalpur	21	29·716	+·013	29·676	29·888	4th	29·577	25th	·311	85·6	91·3	+1·5	80·1	−0·4	85·7	+0·6	11·2	93·8	17th	75·1	4th & 27th.	18·7
	XII.—Hill Stations.																							
													89·9		52·2		71·1		37·7	96·4	31st	41·1	1st	55·3
48	Baluchistan	Pishin	5,502	24·611	+·027		24·710	3rd	24·518	9th	·192	71·3	86·8	+3·3	52·0*	−0·2*	69·5*	+1·6*	34·8	92·1	22nd	43·4	1st	48·7
		Quetta										68·9	88·4	+3·0	40·5	−2·8	64·5	+0·1	47·9	97·7	24th	29·6	1st	68·1
		Kalat										82·2	94·4	+0·1	66·3	+0·4	80·4	+0·3	28·1	101·2	21st, 22nd & 31st.	58·1	1st	43·1
		Chaman	4,311	25·627	−·004		25·742	3rd	25·524	13th	·218	47·4	62·2	−1·8	37·1	+0·3	49·7	−0·8	25·1	73·1	23rd	29·5	3rd	43·6
	Punjab and North-West Frontier Province.	Leh	11,503	19·758	+·031		19·922	4th	19·593	15th	·329	60·9	78·5	+1·6	52·9	+0·8	65·7	+1·2	25·6	88·8	9th	44·2	2nd	44·6
		Srinagar	5,204	24·827	−·021		24·979	23rd	24·710	22nd	·269	46·3	65·0		37·2		51·1		27·8	76·8	21st	30·1	2nd	46·7
		Sonemarg		21·850			21·994	23rd	21·763	28th	·231	61·0	74·7		52·2		63·5		22·5	85·0	22nd	45·2	1st & 2nd.	39·8
		Minimarg										49·6	63·9		36·6		50·3		27·3	74·9	22nd & 23rd.	28·1	3rd	46·8
		Skardu		22·862			23·048	4th	22·713	15th	·335	67·6	85·2	−0·1	61·4	−0·5	73·3	−0·3	23·8	97·5	22nd	51·7	3rd	45·8
		Dras		20·833			21·004	4th	20·697	15th	·307	71·5	88·2		56·8		72·5		31·4	99·4	30th	49·0	2nd	50·4
		Gilgit	4,890	25·108			25·296	4th	24·978	15th	·318	69·8	87·4		63·2		75·4		24·2	98·4	21st	52·9	14th	45·5
		Chitral		24·323			24·450	2nd	24·215	25th	·235	71·8	82·6		59·6		71·2		23·0	91·9	22nd	50·2	1st	41·7
		Killa Drosh										76·3	90·1	+0·5	69·7	+1·4	79·9	+1·0	20·4	101·9	22nd	57·0	15th	44·9
		Para Chinar	6,000	24·396			24·524	4th	24·312	25th	·212													
		Cherat		25·613	+·020		25·731	4th	25·501	9th	·230													

* Mean of 29 days.

I—*continued.*

in India, Burma, etc., in May, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st May, 1902.	Normal rainfall for period, 1st to 31st May.	Variation from normal of period, 1st to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				2·50	2·25	+0·25					**XI.—South India.**		
		2	2	4	4	19			S 20° W	12·5	13·3			84	1·045	2·6	3	1·20	+ 1·80	1·14	0·55	+ 0·59	1·14	0·55	+ 0·59	0·76	Pamban	Madras (South).	57
	4	2		4	4	7	9	1	S 62° W	4·6	4·4			61	·814	4·0	4	3·30	+ 0·70	3·00	1·37	+ 1·63	3·00	1·37	+ 1·63	1·52	Tinnevelly.		
14	5		1	1	1	2	2	5	N 46° W	1·5	1·5	3·7	− 59	70	·884	3·8	6	4·20	+ 1·80	1·97	2·65	− 0·68	1·97	2·65	− 0·68	0·40	Madura.		
17	1		1	1	1	6	3	1	S 56° W	2·8	3·0			70	·779	4·5	9	5·10	+ 3·90	3·61	2·73	+ 0·88	3·61	2·73	+ 0·88	0·92	Periya Kulam		
5			2		2	9	9	4	S 71° W	3·1	2·8	4·4	− 36	76	·860	5·1	12	7·10	+ 4·90	8·54	5·01	+ 3·53	8·54	5·01	+ 3·53	1·56	Salem	Madras (South Central).	34
			6	3	10	9	3		S 4° W	3·1	2·8	5·3	− 47	83	·875	5·2	6	4·70	+ 1·30	5·80	2·28	+ 3·52	5·80	2·28	+ 3·52	2·87	Coimbatore.		
18	6						3	4	N 45° W	4·9	4·6	5·3	− 13	91	·630	7·3	6	9·00	− 3·00	3·91	5·78	− 1·87	3·91	5·78	− 1·87	1·12	Mercara	Coorg.	35
1						8	18	4	S 84 W	9·9	8·6			69	·683	4·6	6	4·60	+ 1·40	1·91	3·74	− 1·83	1·91	3·74	− 1·83	0·46	Chitaldroog	Mysore.	36
	1				2	5	19	4	S 84° W	9·0	7·8	5·5	+ 42	73	·661	4·6	7	6·50	+ 0·50	7·79	4·22	+ 3·57	7·79	4·22	+ 3·57	4·48	Bangalore.		
2						7	11	11	N 84° W	3·7	3·2			74	·663	6·0	8	7·80	+ 0·20	5·68	5·17	+ 0·51	5·68	5·17	+ 0·51	2·41	Hassan.		
	2	2				9	14	4	S 90° W	7·8	8·4			77	·701	7·3	10	8·30	+ 1·70	5·75	3·37	+ 2·38	5·75	3·37	+ 2·38	1·42	Mysore.		
6			1	1	4	14	5		S 42° W	7·3	6·4	7·4	− 14	71	·951	3·4	1	2·10	− 1·10	0·10	1·61	− 1·51	0·10	1·61	− 1·51	0·10	Negapatam	Madras (East Coast, South).	56
21			1			5	3	1	S 65° W	1·8	2·2			68	·898	5·6	2	1·20	+ 0·80	0·92	0·28	+ 0·64	0·92	0·28	+ 0·64	0·59	Cuddalore.		
8				1		7	14	1	S 75° W	5·8		6·0	− 3	67	·820	3·5	5	3·50	+ 1·50	2·00	2·94	− 0·94	2·00	2·94	− 0·94	0·58	Trichinopoly.		
					16	8	7		S 31° W	9·3		9·2	+ 1	62	·836	3·5	1	2·30	− 1·30	0·17	0·90	− 0·73	0·17	0·90	− 0·73	0·17	Madras.		
8		1		3		4		15	N 61° W	4·9	4·9			59	·743	5·4	4	4·40	− 0·40	1·57	3·02	− 1·45	1·57	3·02	− 1·45	0·72	Vellore.		
				6	7	1	9	8	S 60° W	8·8				58	·830	5·7	0	1·60	− 1·60	0·16	0·39	− 0·23	0·16	0·39	− 0·23	0·07	Nellore	Madras (East Coast, Central).	55
				5	9	7	7	3	S 34° W	11·7	11·2	8·9	+ 26	84	1·184	5·7	1	1·90	− 0·90	0·16	1·27	− 1·11	0·16	1·27	− 1·11	0·13	Masulipatam		
		1		2		6	16	6	S 88° W					53	·762	4·3	2	2·50	− 0·50	0·44	1·80	− 1·36	0·44	1·80	− 1·36	0·22	Cuddapah	Madras (Central).	54
3	2		1			2	18	5	N 80° W					52	·680	4·2	2	2·90	− 0·90	0·55	0·95	− 0·40	0·55	0·95	− 0·40	0·28	Kurnool.		
1			2		2	6	12	8	S 88° W	9·0	9·5	8·4	+ 13	54	·670	3·8	5	3·20	+ 1·80	4·25	1·98	+ 2·27	4·25	1·98	+ 2·27	2·90	Bellary.		
2		1	1	5	6	12	4		S 22° W	9·8	8·2			76	1·024	4·9	2	2·80	− 0·80	0·90	0·93	− 0·03	0·90	0·93	− 0·03	0·52	Cocanada	Madras (East Coast, North).	52
				1	1	29			S 42° W	17·5				68	·883	5·6	1	3·40	− 2·40	0·64	2·47	− 1·83	0·64	2·47	− 1·83	0·58	Waltair (Vizag.).		
	1	1	1		11	17			S 25° W	21·2	20·8	13·3	+ 56	79	·961	1·9	2	3·30	− 1·30	0·35	2·10	− 1·75	0·35	2·10	− 1·75	0·16	Gopalpur.		
																											XII.—Hill Stations.		
																	0	0·70	− 0·70	0	0·19	− 0·19	0	0·19	− 0·19	0	Pishin	Baluchistan.	48
29		1				1			N 23° W	1·4	1·5	4·7	− 68	48	·368	0·5	0	1·10	− 1·10	0·10	0·40	− 0·30	0·10	0·40	− 0·30	0·09	Quetta.		
	6		6		18		1		S 23° E					43	·304		1	0·90	+ 0·10	0·15	0·26	− 0·11	0·15	0·26	− 0·11	0·15	Kalat.		
6	3	2		1	4	7	5	3	S 72° W	8·8				32	·355	0·5	0	0·10	− 0·10	0·02	0·05	− 0·03	0·02	0·05	− 0·03	0·02	Chaman.		
		1	2	4	17	5	2		S	2·9				39	·126	3·9	1	0·90	+ 0·10	0·37	0·22	+ 0·15	0·37	0·22	+ 0·15	0·12	Leh	Punjab and N.-W. Frontier Province.	30
10	1		1	10	6	1	1	1	S 25° E	3·8	4·1			88	·491	3·1	6	5·80	+ 0·20	3·28	2·60	+ 0·68	3·28	2·60	+ 0·68	1·27	Srinagar.		
13		10	5	2			1		N 66° E	5·0	4·6			75	·237	2·3	9			5·21				5·21		1·42	Sonemarg		
																											Minimarg		
13	1	5	2		3	5	2		S	7·0	7·1			50	·261	4·0	2	1·90	+ 0·10	0·72	1·04	− 0·32	0·72	1·04	− 0·32	0·54	Skardu.		
13		3	2	2	1	5	5		S 37° W	5·2	5·4			95	·344	3·5	6	6·20	− 0·20	2·84	2·82	+ 0·02	2·84	2·82	+ 0·02	0·83	Dras.		
28			1			1			Calm	4·1*	3·6*			51	·331	4·1	3	1·70	+ 1·30	0·83	0·57	+ 0·26	0·83	0·57	+ 0·26	0·42	Gilgit.		
27	2				1				N					41	·310	1·3	2			0·29			0·29			0·13	Chitral.		
21		2	1			1	6		N 76° W					38	·262	1·2	3			0·79			0·79			0·41	Killa Drosh.		
13	8	3	3				1	3	N 10° E	5·0				37	·280	2·2	8	6·50	+ 1·50	2·00	2·02	− 0·02	2·00	2·02	− 0·02	0·48	Para Chinar.		
	6	6		3	1	3		12	N 17° W	10·2	9·5			34	·208	1·8	2			0·80	1·21	− 0·41	0·80	1·21	− 0·41	0·43	Cherat.		

Table

Abstract of Observations taken at 8 A.M. at 224 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
30	Punjab—(*concld.*)	Murree	6,333	23·801	+·004		23·916	4th	23·729	9th	·187	69·3	77·4	+0·5	58·7	−0·7	68·1	−0·1	18·7	89·9	9th	43·9	16th	46·0
		Poo											6·96		47·8		58·8		21·8	78·2	23rd	40·0	2nd & 27th.	38·2
		Simla	7,224	23·088	+·016		23·188	4th	23·026	15th	·162	64·0	72·1	−1·0	58·2	−0·4	65·2	−0·7	13·9	80·6	26th	48·3	27th	32·3
25	United Provinces.	Chakrata	7,022	23·257	+·011		23·377	4th	23·188	28th	·189	62·2	71·9	−2·4	57·4	+0·8	64·7	−0·8	14·5	78·2	22nd	49·3	3rd	28·9
		Mussooree	6,705	23·523	+·009		23·635	4th	23·428	9th	·207	65·6	75·6	−2·4	59·1	+0·9	67·4	−0·8	16·5	83·3	22nd	49·0	27th	34·3
		Ranikhet	6,069	24·060	+·014		24·182	4th	23·984	28th	·198	68·0	80·0	+1·8	61·8	+1·3	70·9	+1·6	18·2	86·0	21st	50·5	27th	35·5
		Muktesar		22·833			22·942	4th	22·755	28th	·187	63·3	75·7		55·4		65·6		20·3	81·7	8th & 20th.	45·8	27th	35·9
13	Bengal	Yatung	10,480?										58·0		39·2		48·6		18·8	65·1	29th & 29th.	31·9	2nd	33·2
		Darjeeling	7,376	22·977	−·004		23·089	4th	22·899	13th	·190	57·6	63·7	−0·1	51·3	−1·2	57·6	−0·7	12·3	70·2	8th & 9th.	45·6	2nd	24·6
	Central India	Mount Abu	3,945	25·990	+·010		26·071	4th	25·894	8th	·177	77·6	88·1	−0·1	71·8	+0·7	80·0	+0·3	16·3	95·2	5th	61·4	14th	33·8
		Pachmarhi	3,528	26·384	+·017		26·442	4th	26·315	27th	·127	83·6	98·3	+3·2	76·9	+1·8	87·6	+2·5	21·4	101·7	20th & 21st.	68·7	5th & 6th.	33·0
	South India	Wellington*	6,200	24·247	+·017		24·294	14th	24·205	26th & 27th, 26th	·089	67·9	78·1	+1·9	57·1	−1·0	67·6	+0·5	21·0	79·2	5 days	53·2	18th	26·0
		Kodaikanal	7,688	22·848			22·890	11th	22·810		·080	63·1	70·5		55·5		61·1		15·0	75·2	8th	52·7	17th	22·5
		Ootacamund		23·074			23·117	11th & 14th.	23·012	8th	·105	63·9	70·3		52·6		61·5		17·7	73·0	29th	48·8	3rd & 5th.	24·2
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·852	?	29·790	29·908	14th	29·780	26th	·128	84·2	94·2	+1·2	79·5	+0·7	86·8	+1·0	14·7	97·0	12th	77·0	1st	20·0
		Colombo	40	29·866	+·010	29·832	29·910	15th	29·816	25th	·094	82·5	88·6	+0·6	78·6	+0·2	83·6	+0·4	10·0	90·5	1st, 12th & 13th.	73·0	21st	17·5
												72·1			58·4	+1·2						47·9	25th	
	Persia	Meshed	3,104																					
		Teheran†		25·906¶ / 24·776§			26·000 / 24·850	31st 3rd, 30th & 31st.	25·749 / 24·680	19th / 19th	·260 / ·170	75·7	87·5		62·0		74·7		25·5	95·9	4th	42·0	21st	53·9
		Ispahan†		24·331¶			24·480	28th	24·190	22nd	·290	72·3	87·3	+3·2	56·7	+2·6	72·0	+2·9	30·6	95·0	30th	51·4	22nd	43·6
		Bushire	14	29·762	−·005	29·735	29·877	20th	29·653	31st	·224	83·6	89·2	+0·1	76·7	+1·4	83·0	+0·8	12·5	99·5	31st	69·6	10th & 22nd.	29·9
		Bahrein‡	30	29·779			29·892	20th	29·678	22nd	·214	84·2	92·1		77·7		84·9		14·4	106·7	8th	70·4	22nd	36·3
		Jask		29·720	−·031		29·791	2nd	29·607	9th	·184	85·6	93·1	+0·7	79·3	+1·0	86·2	+0·9	13·8	110·2	30th	70·2	1st	40·0
		Muscat	20	29·741	+·007	29·708	29·836	2nd	29·644	9th	·192	88·5	91·0	−0·6	86·1	+0·2	88·6	−0·2	4·9	99·2	30th	83·0	1st	16·2
	Arabia	Baghdad	220	29·699	−·013	29·892	29·839	29th	29·553	22nd	·286	81·2	99·6	+7·8	71·9	+4·0	85·7	+5·9	27·7	105·3	4th	64·6	20th	40·7
		Bussrah		29·841			29·995	20th	29·768	18th	·227		97·9		78·0		87·9		19·9	110·4	29th	69·9	1st	40·5
		Aden§	94	29·746	−·027	29·770	29·808	28th	29·577	31st	·231	87·1	94·7	+1·5	81·7	+1·2	88·2	+1·4	13·0	96·3	14th	69·9	4th	28·4
		Perim	201	29·635	+·004	29·768	29·685	2nd	29·521	31st	·164	87·1	93·5	+1·0	83·4	+1·5	88·5	+1·3	10·1	98·3	28th	80·6	8th	17·7
												68·0	86·7	+4·1	52·1	−1·1	69·4	+1·5	34·6	102·1	9th	41·4	1st	60·7
	Afghanistan	Kabul		**																				
	Central Asia	Kashgar	4,255	25·534			25·640	4 days	25·260	22nd	·380	70·1	83·8	+2·9	59·8	+1·8	71·8	+2·4	24·0	98·1	21st	48·8	8th	49·3
	Arabian Sea Islands.	Amini Devi	13																	92·1	23rd			
		Minicoy	7	29·912		29·844	29·965	16th	29·863	31st	·102	85·3	89·4	+0·8										
	Africa	Zanzibar	73	29·999	−·008	29·999	30·054	24th	29·939	1st	·115	78·1 ††	83·7 ††	+1·3	76·6 ††	+0·9	80·1 ††	+1·1	7·1 ††	86·8	2nd	73·1	30th	13·7
		Do. Dunga		29·927			30·020	24th	29·863	1st	·157	77·1 ††	85·9 ††		70·8		78·6 ††		15·1 ††	89·6	13th	67·9	23rd	21·7
	Straits Settlements.	Penang‖	20	29·915		29·860	29·982	2nd	29·809	26th	·173	82·1	90·6		74·8		82·7		15·8	92·0	9 days	73·0	12th	19·0
		Singapore‖	10	29·933		29·864	29·996	14th	29·886	2nd	·110	85·1	88·1		73·9		81·0		14·2	90·0	22nd & 30th.	72·0	3rd	18·0

* Observation of 25 days.

† Observations of 30 days.
‡ " 22 "
§ " 28 "

‖ 9 A.M. Observations.
¶ Aneroid uncorrected.

NOTE.—When a query is inserted against any reading or in the returns of any

I—*concluded.*

in India, Burma, etc., in May, 1902—concluded.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st May, 1902.	Normal rainfall for period, 1st to 31st May.	Variation from normal of period, 1st to 31st May.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
12	4	1	2	1	2	1		8	N 23° W	6·8	7·3	3·3	− 12	47	·336	2·1	7	6·30	+0·70	4·11	2·97	+ 1·14	4·11	2·97	+ 1·14	1·29	Murree.	Punjab—(*concld.*)	30
									S 84° E	3·3							2			0·18	0·71	+ 0·17	0·88	0·71	+ 0·17	0·70	Poo.		
26		2	1	1	1																								
8	6	2	3	5	3			4	N 53° E	6·7		2·9	+131	42	·243	2·6	5	5·20	−0·20	1·83	3·06	− 1·23	1·83	3·06	− 1·23	0·45	Simla.		
17	4	1		3	6				S 40° E	10·4		6·0	+ 73	54	·294	2·3	6	5·90	+0·10	4·41	2·43	+ 1·98	4·41	2·43	+ 1·98	1·68	Chakrata .	United Provinces.	25
1			16	5	2		5	2	S 73° E					49	·308	2·3	4	4·30	−0·30	3·13	2·24	+ 0·89	3·13	2·24	+ 0·89	1·46	Mussooree.		
11	1	2			1	8	6	2	S 76° W	3·7	4·2	3·3	+27	49	·329	2·0	4	5·50	−1·50	1·12	2·28	− 1·16	1·12	2·28	− 1·16	0·44	Ranikhet.		
																	4			1·91			1·91			0·92	Muktesar.		
1		2	1	8	3	7	1	8	S 30° W	6·2	5·7			54	·309	2·2	11	12·50	−3·50	5·57	4·88	+ 0·69	5·57	4·88	+ 0·69	1·33	Yatung .	Bengal.	13
																††													
16		4	2	2	1	2	3	1	S 74° E	5·1	4·7	6·2	−24	86	·401	6·4	15	13·43	+1·57	5·54	8·78	− 3·24	5·54	8·78	− 3·24	0·85	Darjeeling.		
	1	1		1	4	13	6	5	S 63° W	13·4	13·5	9·4	+44	37	·319	1·0	1	1·30	−0·30	0·59	0·99	− 0·40	0·59	0·99	− 0·40	0·57	Mount Abu	Central India.	
6	6	1					3	15	N 36° W	9·6	9·9	6·8	+46	33	·373	1·5	0	1·30	−1·30	0·07	0·50	− 0·43	0·07	0·50	− 0·43	0·05	Pachmarhi.		
24								1	N 45° W	2·1		3·0	−30	73	·500	6·8	10	8·20	+1·80	4·04	3·76	+ 0·28	4·04	3·76	+ 0·28	1·24	Wellington .	South India.	
	7	10	6	1	1	1		5	N 34° E	9·3				66	·378	4·0	14	9·30	+4·70	3·95	6·47	− 2·52	3·95	6·47	− 2·52	0·42	Kodaikanal.		
15	1	3	9	3					N 86° E	3·4	3·2			70	·414	4·5	16	9·70	+6·30	9·75	5·93	+ 3·82	9·75	5·93	+ 3·82	2·08	Ootacamund.		
																											XIII.—Extra India.		
3						28			S 45° W	10·8				84	·994	2·5	2			0·41	2·46	− 2·05	0·41	2·46	− 2·05	0·26	Trincomalee	Ceylon.	
			6	5	5	14	1		S 4° W	9·5		8·5	+12	86	·963	7·5	16			10·66	11·12	− 0·46	10·66	11·12	− 0·46	4·54	Colombo.		
														49	·383	1·3	0			0	0·74	− 0·74	0	0·74	− 0·74	0	Meshed .	Persia.	
14	1	2	1		3	3	3	3	S 79° W	3·1	4·0			25	·222	3·9	0			0	0·33	− 0·33	0	0·33	− 0·33	0	Teheran.		
18	1					1	9	1	N 84° W	3·1	4·1			57	·455	1·5				0·01	0·11	− 0·10	0·01	0·11	− 0·10	0·01	Ispahan.		
1	6	5					4	15	N 29° W	9·3	11·1	8·9	+25	54	·619	0·8	0			0	0	0	0	0	0	0	Bushire.		
	5	1		1	2	2	5	6		?	?			83	·966	not recrd.	0			0			0			0	Bahrein.		
3	2		7	6	1		7	5	N 67° E	9·7				65	·789	0·1	0			0	0	0	0	0	0	0	Jask.		
		1		21	2	3	2	2	S 30° E	4·8	5·0			71	·953	0	0			0	0	0	0	0	0	0	Muscat.		
22	7							2	N 7° W	1·7	2·3			44	·467	2·3	0			0	0·24	− 0·24	0	0·24	− 0·24	0	Baghdad .	Arabia.	
																	0			0			0			0	Bussrah.		
	1	11	8	3	1	3	1		N 77° E	§§ 8·8	§§ 8·6	10·6	−19	74	·953	3·7	0			0	0·19	− 0·19	0	0·19	− 0·19	0	Aden.		
2		2	7	16	2		2		S 56° E	13·9	12·5			86	1·121	0·6	0			0	0·37	− 0·37	0	0·37	− 0·37	0	Perim.		
		1	2	11	10	6		1	S 16° E					39	·263	1·0	1			0·67	0·54	+ 0·13	0·67	0·54	+ 0·13	0·43	Kabul .	Afghanistan.	
24	1		1	1	3		1		S 14° E	3·4	3·1			41	·297	0·6	0			0	0·88	− 0·88	0	0·88	− 0·88	0	Kashgar .	Central Asia.	
																				4·10				4·10			Amini Devi	Arabian Sea Islands.	
	3	1	1			2	12	12	N 61° W	7·1	7·6			77	·934	6·5	14			7·06	6·40	+ 0·66	7·06	6·40	+ 0·66	1·62	Minicoy.		
					18	12	1		S 20° W	9·2	8·6			81	·828	6·9	9			12·08	10·62	+ 1·46	12·08	10·62	+ 1·46	4·82	Zanzibar .	Africa.	
3				3		22	1		S 38° W	6·1	5·9			†† 92	†† ·855	‖‖ 6·4	13			9·04			9·04			2·89	Do. Dunga.		
5	3	15		5	1			2	N 50° E	6·1						0·6	8			5·42			5·42			1·73	Penang .	Straits Settlements.	
	2	1	6	12	5	1		4	S 53° E							4·8	7			3·63			3·63			0·86	Singapore.		

station, the data for that station are not utilized in calculating the provincial variations.

** Aneroid corrected. †† Mean of 30 days. ‡‡ Mean of 22 days. §§ Mean of 27 days. ‖‖ Mean of 29 days.

Table II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63 Stations in India, Burma, etc., in May 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63

Meteorological Province.	Station.	Elevation of barcistern above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity 45°Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Hay Islands.	Port Blair	61	29·833	29·733	·100	29·781	+·028	29·773	87·7	78·9	8·8	94·6	74·6	20·0	84·6	84·9	82·3	+ 0·1	76·3	80·2	80·1	78·9
	Rangoon	41	·794	·681	·113	·742	−·013	·719	90·1	77·5	12·6	102·9	73·9	29·0	85·3	85·2	81·7	− 0·8	75·4	79·7	78·7	77·9
	Diamond Island	41	·815	·716	·099	·764	−·002	·739	90·5	79·2	11·3	97·4	74·4	23·0	84·7	84·3	83·0	+ 0·3	75·1	79·2	78·9	77·7
	Cocos Island	119	·757	·681‡	·076	·715	?	·765‡	90·6‖	80·4‡	10·2	96·2	74·4	21·8	86·3	86·9‡	84·1‖	+ 2·0	76·1‡	80·1	80·4‡	79·1
	Akyab	20	·806	·703	·103	·759	+·001	·721	88·8	77·7	11·1	94·4	73·2	21·2	84·7	85·8	82·4	− 0·8		80·4	80·2	
Bengal and Orissa.	Chittagong	87	·724	·627	·097	·677	+·008	·711	88·0	74·5	13·5	93·2	68·8	24·4	85·1‡	84·9	80·4	− 0·6	73·0	78·6	78·0	76·5
	Calcutta (Alipore)	21	·734	·621	·113	·679	+·021	·645	92·2	76·6	15·6	97·2	68·4	28·8	86·5	89·5	84·1	− 1·3	74·6	79·7	80·2	78·2
	Saugor Island	25	·731	·618	·113	·677	+·010	·646	91·7	80·7	11·0	94·0	71·0	23·0	83·3	88·9	85·2	0	77·1	82·5	82·3	80·6
	False Point	21	·733	·628	·105	·683	−·001	·645	89·9	80·0	9·9	92·3	70·3	22·0	88·0	86·9	83·9	− 0·1	77·0	82·7	82·0	80·6
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·718	27·625	·093	27·676	−·007	·573	98·4	74·8	23·6	106·2	65·3	40·9	89·2	91·3	84·7	− 0·9	66·5	70·8	69·6	69·0
	Darbhanga	166	29·562	29·434	·128	29·496	−·002	·613	93·8	76·2	17·6	102·8	69·1	33·7	87·3	92·2	84·2	− 0·4	72·5	78·4	80·7	77·2
	Allahabad	309	·374	·249	·125	·312	−·005	·562	106·9	80·5	26·4	113·9	69·1	44·8	97·0	105·2	93·8	+ 1·4	69·6	76·4	77·1	74·4
Upper Sub-Himalaya.	Dehra Dun	2,233	27·503	27·411	·092	27·447	−·013	·572	95·3	71·4	23·9	102·3	63·8	38·5	86·9	91·7	82·8	+ 0·2	60·7§	67·6	68·0‡	65·4
	Roorkee	899	28·786	28·669	·117	28·722	−·012	·559	101·2	75·0	26·2	108·7	68·2	40·5	91·9	93·5	88·0	+ 0·1	64·9	71·1	71·5	69·2
	Meerut	738	·931	·814	·117	·865	−·013	·541	103·9	77·2	26·7	109·4	68·8	40·6	94·4	101·2	90·2	+ 1·7	66·4	71·3	71·6	69·8
	Lahore	702	·948	·853	·095	·893	−·014	·536	106·0	77·1	28·9	113·4	67·4	47·0	96·3	104·4	91·5	+ 4·1	66·9	73·0	74·4	71·4
	Ludhiana	812	·850	·753	·097	·795	−·007	·548	102·4	77·6	24·8	110·3	69·1	41·2	92·1	101·1	90·0	+ 2·1	67·7‡	70·2	71·6	69·8
Indus Valley and N.W. Rajputana.	Peshawar	1,110	·584	·475	·109	·523	−·020	·578	103·2	72·7	30·5	113·0	62·0	51·0	94·5	99·6	87·1	+ 4·0	60·3	70·5	71·6	67·5
	Jacobabad	186	29·453	29·340	·113	29·389	−·019	·523	115·6	80·6	35·0	124·4	69·3	55·1	102·6	113·4	97·8	+ 3·6	70·5	83·6	88·0	80·8
	Kurrachee	30	·724	·613	·081	·682	+·006	·663	93·4	81·3	12·1	106·5	74·8	31·7	88·4	89·2	85·4	+ 1·4	77·1	81·3	81·9	80·1
East Rajputana, Central India, and Gujarat.	Jaipur	1,431	28·304	28·193	·111	28·247	+·002	·579	107·1	79·0	28·1	113·4	67·9	45·5	97·3	104·2	92·5	+ 1·9	63·6	71·9	72·1	69·2
	Udaipur	1,925	27·830	27·760	·100	27·810		·615	102·1	80·1	22·0	108·1	70·5	37·6	94·5	100·1	90·6		70·6	76·7	80·1	75·8
	Deesa	466	29·312	29·170	·142	29·240	+·006	·642	108·4	78·3	30·1	115·3	70·5	44·8	93·2	106·5	92·7	+ 1·5	69·1	75·7	73·4	72·7
	Jamnagar	61	·743	·644	·099	·693		·701	98·0	77·7	20·3	105·2	73·5	31·7	92·8	93·5	86·7		73·7‖	78·9	80·2	77·7
Deccan.	Belgaum	2,539	27·344	27·236	·108	27·291	+·016	·694	94·4	69·1	25·3	98·2	65·8	32·4	85·0	88·0	78·9	+ 1·2	67·4	70·7	73·4	70·5
	Sholapur	1,590	28·234¶	28·078¶	·156	28·158	+·006	·631¶	106·2¶	79·3†	26·9	109·6	74·0	35·6	93·7¶	103·7¶	91·6†	+ 2·4	67·2†	71·3¶	71·0¶	69·8
	Akola	930	·818	·701	·117	·773	+·014	·617	109·7	83·1	26·6	113·5	77·4	36·1	98·4	107·9	96·2	+ 2·4	70·6	75·1	75·2	73·7
	Buldana	2,132	27·693	27·570	·123	27·630	+·012	·621	102·8	78·3	24·5	106·4	73·2	33·2	91·8	100·9	90·3	+ 1·6	63·9	69·8	68·6	67·4
	Khandwa	1,044	28·740	28·590	·150	28·664	+·015	·623	107·8	82·8	25·0	114·2	72·6	41·6	95·7	106·6	94·9	+ 2·4	66·1	73·4	72·3	70·6
	Nagpur	1,025	·704	·564	·140	·623	+ ·001	·566	110·9	81·7	26·2	114·2	75·0	39·2	100·6	105·9	97·1	+ 2·5	63·9	71·3	71·5	68·9
	Nagpur (Sanitary Commr.'s Office)	1,013	·726	·590	·136	·657		·579	111·9	85·6	26·3	115·7	75·2	40·5	102·5	103·3	97·9		66·4	73·6	74·2	71·4
	Hyderabad (Deccan).	1,690	·112	27·983	·129	·048	+·001	·609	106·1	83·0	23·1	110·0	75·6	34·4	96·7	102·9	93·8	+ 2·7		74·7	74·8	
West Coast.	Bombay	37	29·849	29·747	·102	29·796	+·027	·772	92·5	82·3	10·2	94·0	79·6	14·4	88·2	89·3	86·5	+ 1·8	77·8	79·5	80·1	79·1
	Karwar	44	·856	·756	·100	·804	+·025	·779	91·2	81·6	9·6	92·9	78·2	14·7	88·0	89·3	85·8	+ 1·9	78·3	80·2	81·5	80·0

† Mean of 24 days. ‡ Mean of 30 days. § Mean of 27 days. ‖ Mean of 29 days.

II.

Stations in India, Burma, etc., in May, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from										Wind steadiness.		Wind velocity.		Rainfall.		Station.	Meteorological Province
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·875	·976	·969	·940	+·003	89	82	80	84	+1	7·0	7·6	7·3	+0·6			1	2	6	5	18	23	7	S. 64° W.	S. 38° W.	60	41	221	171	17·56	2·45	Port Blair	Burma Coast and Bay Islands.
																Not recorded															Rangoon	
·856	·939	·892	·896	+·026	90	77	75	81	+3	6·7	7·7	7·2	+0·3																			
·809	·927	·920	·885	−·006	81	78	78	79	+5	6·3	6·7	6·5	+0·2	1	1	1	2	3	9	18	18	9	S. 64° W.	S. 72° W.	58	47	185°	177	13·91	3·93	Diamond Island.	
·881‡	·946	·953‡	·927	+·037	85‡	76	75‡	79	−2	6·6	7·1‡	6·9	+0·4											S. 51° W.		58		P	8·61	2·44	Cocos Island.	
	·988	·960				82	78			6·4	4·7	5·6	+0·1			4	6	14	12	13	10	3	S. 6° W.	S. 24° W.	42	30	66°	89	19·97	5·96	Akyab	
·796	·896‡	·870	·854	−·017	93	74‡	73	80	0	6·0	5·1	5·6	+0·2		1	4	4	14	12	16	4	7	S. 8° W.	S. 1° E	40	42	148°	150	12·77	2·49	Chittagong	Bengal and Orissa.
·838	·929	·912	·893	+·010	91	74	66	77	+3	5·6	3·4	4·5	+0·2	2	2	4	7	9	21	13	2	2	S. 7° E.	S. 7° E.	49	65	150	172	9·19	2·29	Calcutta (Alipore).	
·894	1·037	1·022	·981	−·003	85	77	75	79	−1	6·8	6·0	6·4	+0·6			3	2	8	37	8	1	3	S. 1° E.	S. 8° W.	71	73	428	394	4·00	0·93	Saugor Island.	
·900	1·047	1·032	·993	+·023	87	79	80	82	0	5·8	6·1	6·0	+1·2	1				2	44	14		1	S. 10° W.	S. 23° W.	89	73	315°	338	3·43	1·75	False Point	
·554	·525	·459	·513	+·036	65	39	35	46	+6	2·8	6·2	4·5	+0·9	1	7	4	5	6	10	10	9	10	S. 68° W.	S. 83° W.	19	15	210°	222	3·70	0·96	Hazaribagh	Gangetic Plain and Chota Nagpur.
·754	·857	·897	·836	+·071	83	66	60	70	+8	2·7	1·5	2·1	+0·1	6	1	3	26	23			2	1	S. 73° E.	S. 82° E.	69	60	119	152	3·69	1·95	Darbhanga	
·584	·639	·557	·593	+·067	56	38	26	40	+3	1·2	2·3	1·8	+0·2	5	5	11	14	2	2	2	9	12	N. 15° E.	N. 3° W.	27	24	185°	149	0·64	0·42	Allahabad	
·400§	·438	·397‡	·412	+·005	53§	36	28‡	39	0	2·8¶	4·2**	3·5	+0·8		2	5	7	6	11	10	16	5	S. 42° W.	S. 80° W.	29	25	64	54	0·99	0·46	Dehra Dun	Upper Sub-Himalayas.
·487	·488	·401	·459	+·031	56	34	23	37	+2	1·0	0·7	0·9	−0·7	8			1	23	11	2	2	15	S. 1° E	S. 53° W.	29	11	87	90	1·40	0·72	Roorkee	
·514	·465	·383	·454	−·040	56	30	20	35	−5	2·7	2·4	2·6	+0·9	17			12	6		7	14	6	S. 55° W.	N. 54° W.	13	22	47°	64	0·56	0·56	Meerut	
·531	·504	·452	·495	+·054	57	31	22	37	+4	1·6	1·0	1·3	−0·9	7	9	3	5	7	4	2	11	14	N. 44° W.	N. 11° E.	24	17	76	79	0·73	0·48	Lahore	
·550‡	·451	·384	·462	−·033	58‡	32	22	37	−4	1·2	0·7	1·0	−1·1		4	4	7	23	1	1	16	6	S.3 7° E.	N. 61° W.	14	11	64°	58	2·17	1·14	Ludhiana	
·376	·452	·431	·420	−·003	48	30	25	34	−5	1·5	4·2	2·9	0	13	10	10	9	2	2		11	5	N. 9° E.	N. 17° E.	27	29	111°	116	0·10	0·07	Peshawar	Indus Valley and N.-W. Rajputana.
·626	·917	·991	·845	P	59	45	36	47	+17	0·5	0·9	0·7	−0·4	10	5	2	4	18	10	2	4	7	S. 31° E.	S. 40° E.	24	10	102°	112	0·06	0·06	Jacobabad	
·878	·967	·996	·947	+·058	82	71	73	75	+2	1·9	1·7	1·8	−0·3			1				30	30	1	S. 69° W.	S. 66° W.	89	86	135°	107	1·85	1·21	Kurrachee	
·402	·467	·387	·419	−·017	41	27	19	29	−3	0·8	2·5	1·7	−0·5		1			6	2	17	29	7	S. 71° W.	N. 66° W.	69	49	129	156	0·61	0·41	Jaipur	East Rajputana, Central India, and Gujarat.
·633	·703	·782	·706		63	44	41	49		0·3	1·3	0·8		6					3	16	28	9	S. 80° W.		74		210°		0·63	0·45	Udaipur	
·596	·655	·378	·543	−·023	62	43	17	40	0	0·7	0·6	0·7	−0·8			1			7	35	17	2	S. 55° W.	S. 60° W.	83	68	327	325	0·02	0·02	Deesa	
·781‖	·803	·856	·820		82‖	52	55	63		0·5	0·3	0·4							2	27	31	2	S. 69° W.		89		592†		0	0	Jamnagar	
·652	·572	·642	·622	+·027	92	48	49	63	+2	3·6	4·8	4·2	+0·6		3				2	14	32	11	S. 89° W.	S. 88° W.	80	60	440	124	1·95	0·80	Belgaum	Deccan.
·517†	·489¶	·351¶	·454	−·017	52†	31¶	16¶	33	−4	2·5¶	5·7¶	4·1	0		8	3			1	4	8	28	N. 47° W.	N. 19° W.	74	55	411°	255	0·47	0·47	Sholapur	
·591	·562	·439	·531	+·123	52	31	18	34	+6	1·5	4·2	2·9	+0·5	2	7	1			3		13	36	N. 51° W.	N. 50° W.	78	75	241°	224	0	0	Akola	
·417	·457	·297	·390	−·035	43	31	15	30	−4	0·6	0·9	0·8	−1·7		12	1		1			16	32	N. 47° W.	N. 49° W.	82	69	329°	286	0·17	0·17	Buldana	
·436	·541	·359	·445	−·021	40	33	16	30	−3	0·9	3·1	2·0	−0·1		5						24	33	N. 59° W.	N. 62° W.	89	72	301	241	0·49	0·43	Khandwa	
·338	·403	·331	·357	−·091	29	21	15	22	−7	1·7	5·3	3·5	−0·3	1	14	1		1		5	14	26	N. 50° W	N. 46° W.	72	41	282	228	0·08	0·06	Nagpur	
·413	471	·422	·435		34	23	18	25		1·2	4·8	3·0		1		2		6		23		30	N. 86° W		52		63		0·03	0·02	Do. (Sanitary Commr.'s Office).	
	·587	·511				34	25			3·9	4·7	4·3	+1·4	7	12	4	1	4	1	2	12	19	N. 41° W.	N. 57° W.	50	50	125°	173	0·27	0·20	Hyderabad (Deccan)	
·891	·898	·908	·899	+·022	81	67	66	71	−3	2·5	2·2	2·4	−1·4						4	8	34	16	N. 88° W.	N. 83° W.	82	70	208	247	0	0	Bombay	West Coast.
·927	·927	·970	·941	+·088	86	70	70	76	+3	2·0	1·6	1·8	−1·4		2					5	22	33	N. 66° W.	N. 67° W.	86	82	145	128	0·23	0·16	Karwar	

¶ Mean of 26 days. ** Mean of 28 days. * Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63

Meteorological Province.	Station.	Elevation of barometer above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L., and for gravity 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	28·909	28·778	·131	28·861			99·5	74·0	25·5	101·8	71·1	30·7	89·1	92·9	84·4		70·9	76·4	77·5	75·0
	Salem	940	·925	·786	·139	·868	−·007	29·722	99·4	75·5	23·9	105·3	70·2	35·1	88·4	96·6	85·4	+0·5	73·0	77·9	80·5	77·1
	Chitaldroog	2,405	27·184	27·352	·131	27·420	−·001	·685	95·7	72·5	23·2	100·1	65·7	34·4	84·7	94·0	83·7	+2·4	68·1	72·5	72·1	70·9
	Bangalore	3,021	26·914	26·794	·120	26·861	+·016	·707	92·1	69·4	22·7	97·9	61·8	36·1	82·3	89·3	80·1	+1·5	65·9	71·8	70·5	69·4
	Hassan	3,091	·865	·755	·110	·817	+·006	·750	89·7	67·7	22·0	94·9	63·1	31·8	81·5	82·6	76·9	+1·5	65·8	71·1	71·6	69·5
	Mysore	2,518	27·405	27·276	·129	27·341	−·001	·726	92·5	69·8	22·7	95·7	62·9	31·8	82·2	89·1	80·3	+1·2	67·6	72·2	72·5	70·8
	Madras	22	29·780	29·669	·118	29·735	+·003	·684	100·5	82·3	18·2	108·0	77·7	30·3	94·9	90·7	86·9	+1·5		79·7	80·7	79·5
	Bellary	1,475	28·376	28·225	·151	28·302	+·012	·674	104·1	78·5	25·6	108·0	70·2	37·8	90·4	100·8	90·1	+1·5	70·4	75·7	75·5	73·9
	Waltair	226	29·513	29·436	·107	29·490		·653	92·9	82·1	10·8	99·8	75·9	23·9	90·0	88·3	86·4		73·7	80·2	81·0	79·3
Hill Station, Baluchistan.	Quetta	5,502	24·616	24·530	·086	24·565	+·018		87·2	52·2‖	35·0	91·9	43·3	48·6	79·7	85·0	69·1‖	+2·0	45·8	59·2	59·9	55·0
Hill Stations, Northern India.	Leh	11,503	19·760	19·678	·082	19·731	+·038		62·6	37·0	25·6	72·9	29·5	43·4	54·3	59·6	49·4	+1·0	32·4	40·3	43·4	38·7
	Srinagar	5,204	24·820	24·743	·077	24·774	−·030		78·8	53·3	25·5	88·8	44·2	44·6	66·5	76·0	65·3	+0·7	51·0	63·6	70·6	61·7
	Kailang	10,087	20·971	20·920	·054	20·959	?		65·4	38·0	27·4	74·8	31·0	43·8	54·8	57·9	49·5	+1·3	35·3	43·7	45·0	41·3
	Simla (Ridge)	7,224	23·106	23·064	·042	23·076	+·015		72·3	58·2	14·1	80·6	48·3	32·3	67·2	69·7	65·0	−0·1	49·0	52·9	54·4	52·1
	Chakrata	7,022	·273	·220	·053	·238	+·012		71·9	57·3	14·6	78·2	49·3	28·9	67·6	68·0	64·1	−0·7	49·5†	54·3	54·2	52·7
	Ranikhet	6,069	24·071	24·000	·071	24·024	+·010		80·0	61·8	18·2	85·9	50·7	35·2	74·0	74·6	69·9	+1·7	53·7	58·4	58·6	56·9
	Muktesar	7,600	22·851	22·785	·066	22·818			75·8	55·4	20·4	81·7	45·8	35·9	67·7	69·8	64·1		48·8	55·8	57·6	54·1
	Katmandu	4,388	25·493	25·399	·094	25·443	P		81·7	60·8	20·9	88·4	53·0	35·4	75·6	75·4	69·7	−1·0	59·2	65·5	64·9	63·2
	Darjeeling	7,376	22·986	22·924	·062	22·951	+·005		63·5	51·4	12·1	70·1	45·4	24·7	59·2	60·5	56·7	+0·4	49·9	56·0	57·1	54·3
Hill Stations, Central India.	Mount Abu	3,945	26·005	25·930	·075	25·966	+·006		88·2	71·7	16·5	95·4	61·4	34·0	81·1	86·6	79·6	+0·6	56·4	62·6	65·0	61·4
	Pachmarhi	3,528	·391	26·295	·099	26·344	+·015		98·3	76·9	21·4	101·7	68·7	33·0	88·7	94·6	86·8	+2·5	60·0	65·4	65·2	63·5
	Chikalda	3,642	·280	·181	·099	·229	+·009		95·2	74·9	20·3	99·4	69·5	29·9	86·6	94·0	84·8	+1·9	61·0	63·6	66·2	63·6
Hill Stations, S. India.	Kodaikanal	7,688	22·861	22·790	·071	22·825			70·4	55·5	14·9	75·2	52·7	22·5	67·6	61·7	61·1		51·0	58·8	57·9	55·9
	Ootacamund		23·084	22·017	·067	23·050			70·3	52·5	17·8	73·0	48·7	24·3	68·1	63·9	59·8		51·3	59·0	59·5	56·6
Extra India.	Aden	94							Not recorded.													
	Perim	201	29·642	29·528	·114	29·582	−·004	·713	93·4	83·4	10·0	98·3	80·6	17·7	89·8	90·5	87·7	+1·1	81·1	84·6	85·3	83·7
	Minicoy	7	·920	·862	·058	·889		·821	89·4			92·1			86·8	86·2				79·8	79·6	
	Zanzibar	73	30·016†	·915	·101	·966	−·009	·985†	83·6	76·6	7·0	86·8	73·1	13·7	79·4	82·6	76·9	+1·9	73·0	76·4‖	76·3‖	75·2
	Port Victoria (Seychelles).	15	29·966	·884	·082	·925	−·016	·864	84·4	75·8	8·6	86·3	72·1	14·2	83·1	83·9	80·0	−0·9	74·6	77·8	78·2	76·9
	Mauritius (Pamplemouses).	181				·886	−·019	30·016				87·7	56·2	31·5			72·9	+0·2				

† Mean of 30 days. ‡ Mean of 28 days. § Mean of 27 days. ‖ Mean of 29 days.

II—*concluded.*

Stations in India, Burma, etc., in May, 1902—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind direction.										Wind steadiness.		Wind velocity.		Rainfall.		Station.	Meteorological Province.
														Number of winds from																	
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month,	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						South India.
·716	·737	·735	·746		85	54	48	63		3·8	6·9	5·4		5	4	4	4	6	4	8	8	3	S. 15° W.		11		74*		3·61	0·92	Periyakulam**	
·782	·823	·828	·811	+·049	89	61	48	66	+ 3	4·1	5·9	5·0	+0·4	11	1	3	2	1	3	11	23	7	S. 84° W.	S 47° W	50	55	67*	98	8·54	1·56	Salem.	
·638	·647	·516	·600	+·033	80	54	33	56	0	3·7	5·0	4·4	+0·2		1		1	1	1	6	28	24	N. 76° W.	N. 80° W.	79	75	209*	232	1·91	0·46	Chitaldroog.	
·599	·659	·531	·596	+·002	84	60	39	61	— 1	3·8	5·0	4·4	0		6	3	1	2	2	12	27	9	N. 86° W.	S. 78° W.	60	68	188*	143	4·28	0·97	Bangalore.	
·619	·642	·648	·636	+·026	90	60	60	70	0	4·7	8·1	6·4	+1·0	1	1			1		14	28	17	N. 87° W.	N. 85° W.	79	72	81*	109	5·68	2·41	Hassan.	
·654	·669	·594	·639	+·034	86	61	44	64	0	7·3	6·8	7·1	+1·7	1	4	7	1	1		13	24	11	N. 79° W.	S. 83° W.	56	64	204*	271	5·75	1·42	Mysore.	
	·813	·914	·882	+·005		50	64	65	— 3	3·2	3·3	3·3	−0·5				1	23	17	10	9	2	S. 1° W.	S. 13° E.	63	65	225	219	0·17	0·17	Madras.	
·647	·708	·569	·641	+·064	67	49	29	48	+ 4	2·9	3·9	3·4	−1·5	3	5	1	3	3	2	5	12	28	N. 59° W.	N. 73° W.	55	55	225*	201	4·25	2·90	Bellary.	
·724	·899	·968	·864		66	64	72	67		5·0	5·2	5·1						2		60			S. 43° W.		97		178		0·64	0·58	Waltair.	
																																Hill Station, Baluchistan.
·253‖	·292	·253	·266	−·010	64‖	29	22	38	— 3	0·5	1·4	1·0	−0·2	40	3	1					7	11	N. 51° W.	N. 68° W.	29	47	35*	91	0·10	0·09	Quetta.	
·149	·133	·145	·142	+·014	67	33	29	43	+ 4	4·9	6·3	5·6	−0·7		1	10	5	2	14	13	13	4	S. 40° W.	S. 71° W.	29	31	74	73	0·37	0·12	Leh.	Hill Stations, Northern India.
·352	·558	·704	·538	+·107	86	85	77	83	+12	2·9	4·4	3·7	+0·2	22	5	2		5	6	3	7	12	N. 76° W.	S. 78° E.	21	11	96*	95	3·28	1·27	Srinagar.	
·185	·189	·189	·188	+·004	81	45	42	56	0	4·4	6·9	5·7	−0·2		1		1	1	12	27	12	8	S. 54° W.	S. 58° W.	69	69	35	56	1·80	1·38	Kailang.	
·255	·254	·269	·259	−·020	54	40	38	44	— 2	2·8	3·8	3·3	−0·5		12	3	1	9	15	3	7	12	S. 83° W.	N. 12° W.	13	33	160	143	1·83	0·45	Simla (Ridge).	
·272†	·286	·280	·279	+·003	59†	44	43	49	+ 1	2·7	4·7	3·7	+0·2	8	7	2		9	31	1		1	S. 11° E.	S. 65° W.	53	33	249	164	1·41	1·68	Chakrata.	
·334	·330	·330	·331	−·003	61	40	40	47	— 3	1·6	4·3	3·0	−0·4	4	5	4		3	1	12	21	12	N. 82° W.	S. 65° W.	53	46	101*	94	1·12	0·44	Ranikhet.	
·281	·324	·354	·320		64	49	49	54		2·2	4·4	3·3			3	5	3	6	2	6	3	34	N. 46° W.		47		135*		1·91	0·92	Muktesar.	
·493	·522	·503	·506	+·010	91	59	58	69	+ 1	5·8	6·8	6·3	+0·9		1	1	15	6	1	10	18	10	S. 74° W.	S. 88° W.	21	49	28	43	5·71	1·11	Katmandu.	
·344	·419	·436	·400	−·008	90	83	83	85	— 2	6·3‡	7·4§	6·9	−0·5	8		4	6	6	3	15	18	2	S. 51° W.	S. 74° W.	35	38	112*	170	5·54	0·85	Darjeeling.	
·284	·360	·372	·338	−·016	38	36	30	35	— 2	0·9	1·0	1·0	−0·4		2				6	39	9	6	S. 56° W.	S. 67° W.	79	71	323*	247	0·59	0·57	Mount Abu.	Hill Stations, Central India.
·327	·357	·281	·322	−·027	35	27	18	27	— 5	1·0	3·4	2·2	−0·6	3	15	3	1				8	32	N. 35° W.	N. 66° W.	77	58	237*	170	0·07	0·05	Pachmarhi.	
·378	·321	·324	·342	−·031	41	26	21	30	— 5	1·0	4·8	2·9	0	15	21							26	N. 25° W.	N. 33° W.	70	65	261*	239	0	0	Chikalda.	
·329	·413	·446	·397		74	61	81	74		4·8	8·4	6·6			9	20	10	10	2		1	7	N. 53° E.		52		218		3·95	0·42	Kodaikanal††	Hill Stations, S. India.
·368	·407	·466	·414		93	60	78	77		4·7	8·2	6·5		19	5	18	13	2	2		1	2	N. 57° E.		47		76*		9·75	2·08	Ootacamund.	
																															Aden.	Extra India.
1·035	1·129	1·157	1·107	+·232	90	80	80	83	+14	0	0·4	0·2	−1·4			1	25	30	2		4		S. 62° E.	S. 82° E.	77	82	302*	337	0	0	Perim.	
	·926	·922				72	74			6·7	7·8	7·3			4	2				3	31	22	N. 68° W.		82		183*		7·06	1·62	Minicoy.	
																		14	37	11			S. 2° E.	S. 5° E.	89	85	206*	194	12·08	4·82	Zanzibar.	
·768	·871‖	·820‖	·820	+·025	84	88‖	73‖	82	0	6·5	5·5	6·0	+0·2										S. 44° E.	S. 44° E.	68	58	221	173	3·96	1·30	Port Victoria (Seychelles).	
·848	·888	·889	·875	+·063	95	78	76	83	+ 7	5·4	5·9	5·7	+0·6	1	1		6	40	7	1		6	S. 44° E.	S. 44° E.	68	58	221	173	1·88	0·36	Mauritius (Pamplemousses).	
			·605	−·011				76	— 2																							

** Wind variable 16.

†† Wind variable 3.

* Corrected.

G. I. C. P. O—No. 156 Meteor.—12-11-'902.—385.

Explanation.

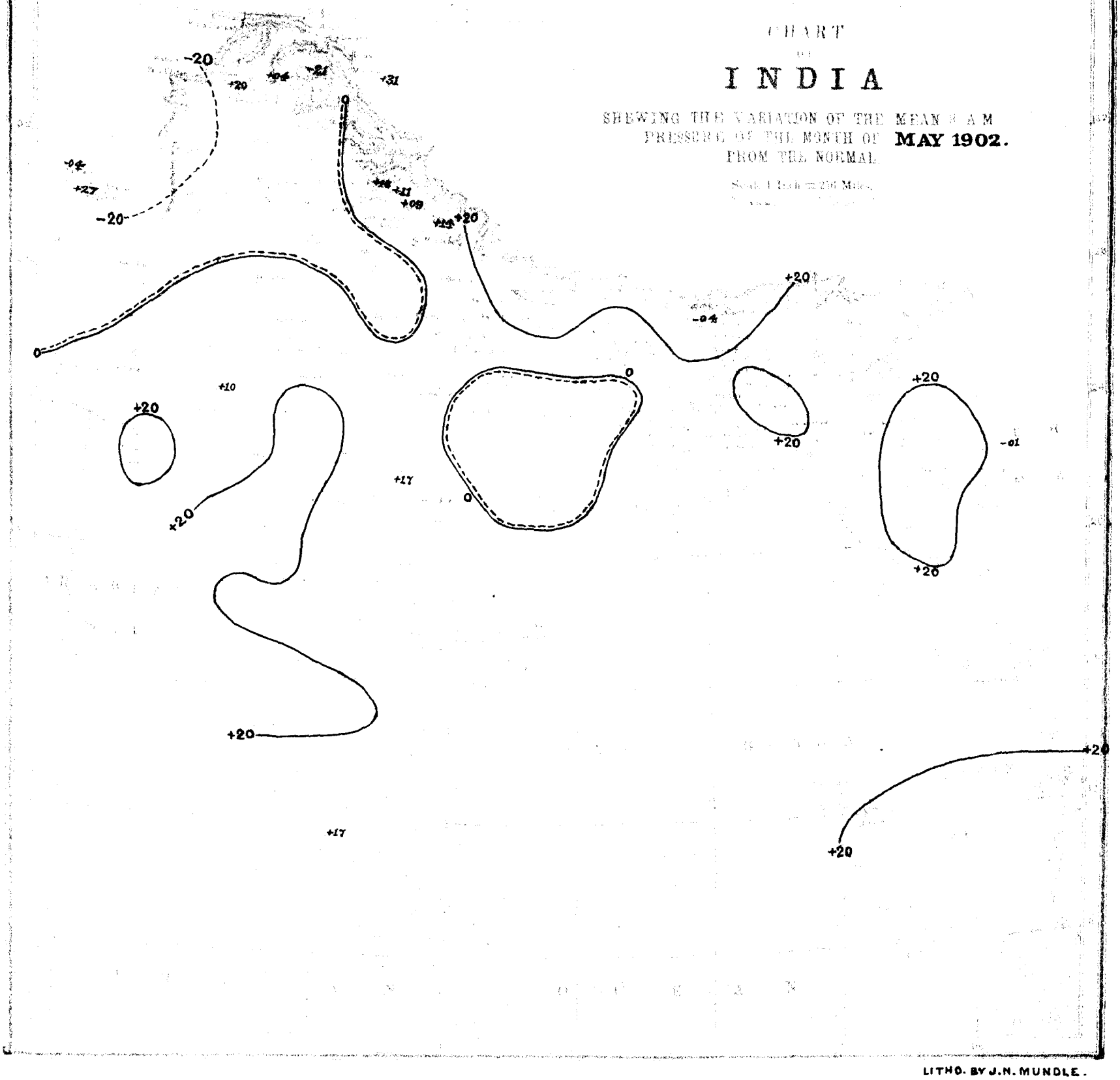
The lines of the above Chart represent isobars or lines of equal barometric pressure, and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of ·05 inch. The isobars in the Bay of Bengal are filled in by means of the shore observations, and by comparison with the ordinary or normal distribution of pressure as given in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant Meteorological Reporter to the Government of India, and published by the Meteorological Department. Hence they have not the same validity as the isobars in the land area of India as if, but it is probable they deviate very little from the actual.

The mean 8 a.m. wind directions of the month are shewn by means of arrows flying with the wind, and are calculated by means of Lambert's formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0 to 2	miles per hour	...	one	feather	added	to	the	wind	arrow
,, ,,	2 to 5	,, ,, ,,	...	two	feathers	,,	,,	,,	,,
,, ,,	5 to 10	,, ,, ,,	...	three	,,	,,	,,	,,	,,
,, ,,	10 to 20	,, ,, ,,	...	four	,,	,,	,,	,,	,,
	over 20	,, ,, ,,	...	five	,,	,,	,,	,,	,,

CHART
OF
INDIA
SHEWING THE VARIATION OF THE MEAN 8 A.M.
PRESSURE OF THE MONTH OF **MAY 1902.**
FROM THE NORMAL.

Scale 1 Inch = 256 Miles.



LITHO. BY J.N. MUNDLE.

Explanation

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other, one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

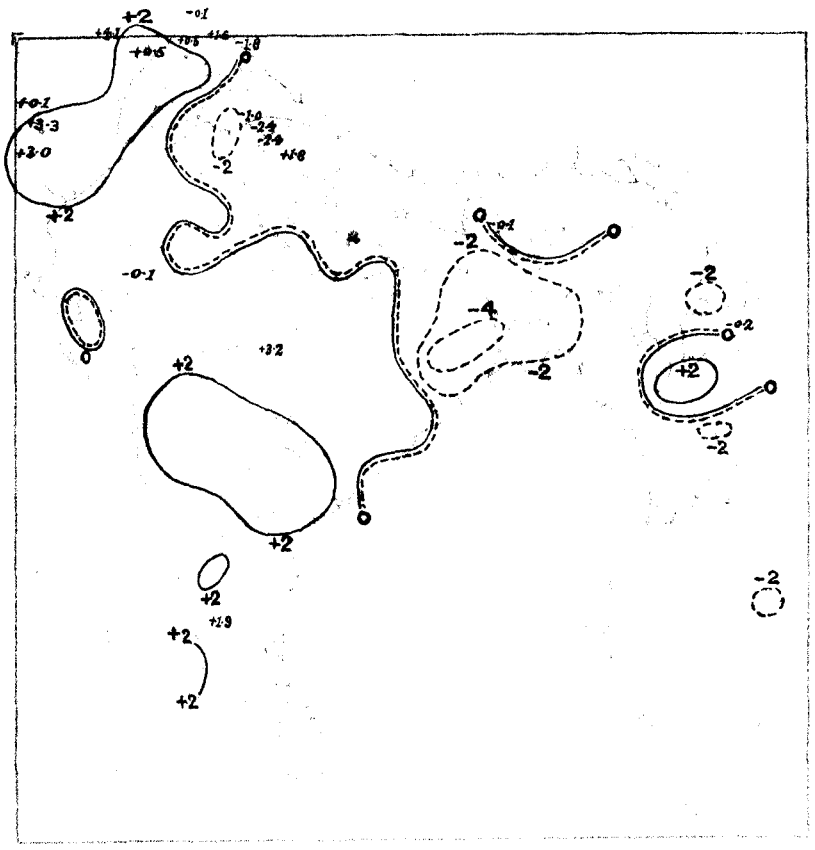
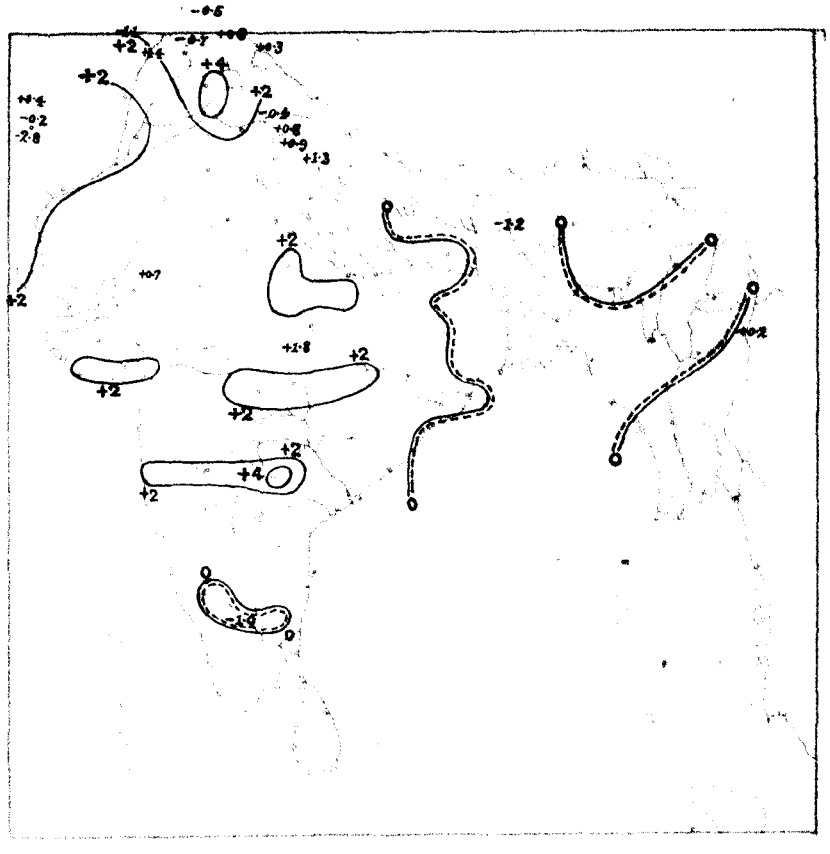


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

Continuous lines indicate that the mean minimum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

CHART SHEWING THE VARIATION OF THE MEAN DAILY TEMPERATURE OF THE MONTH FROM THE NORMAL.

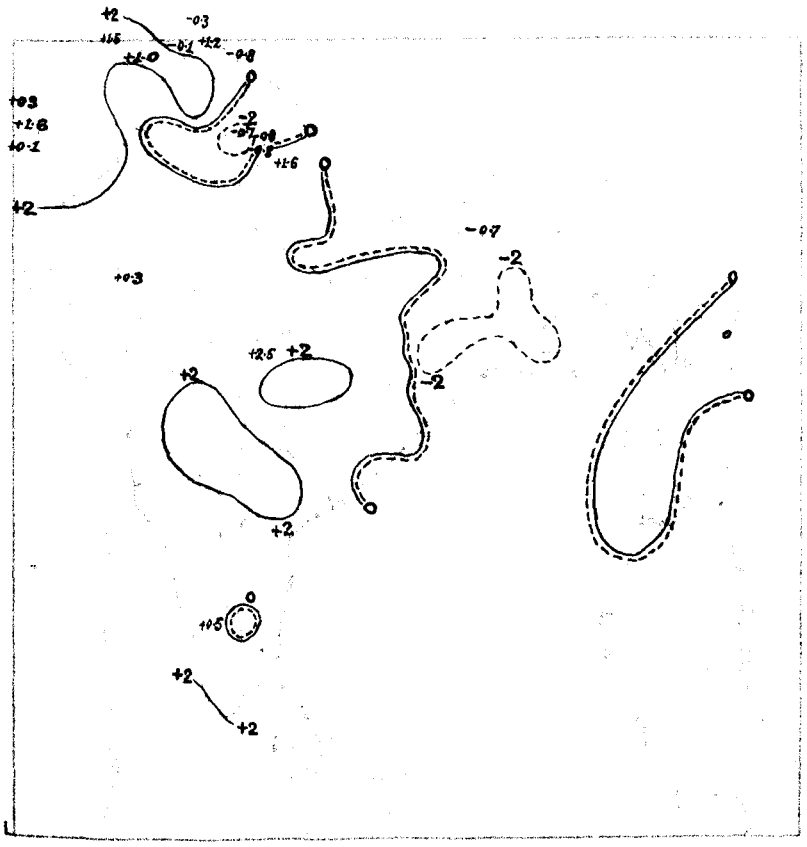
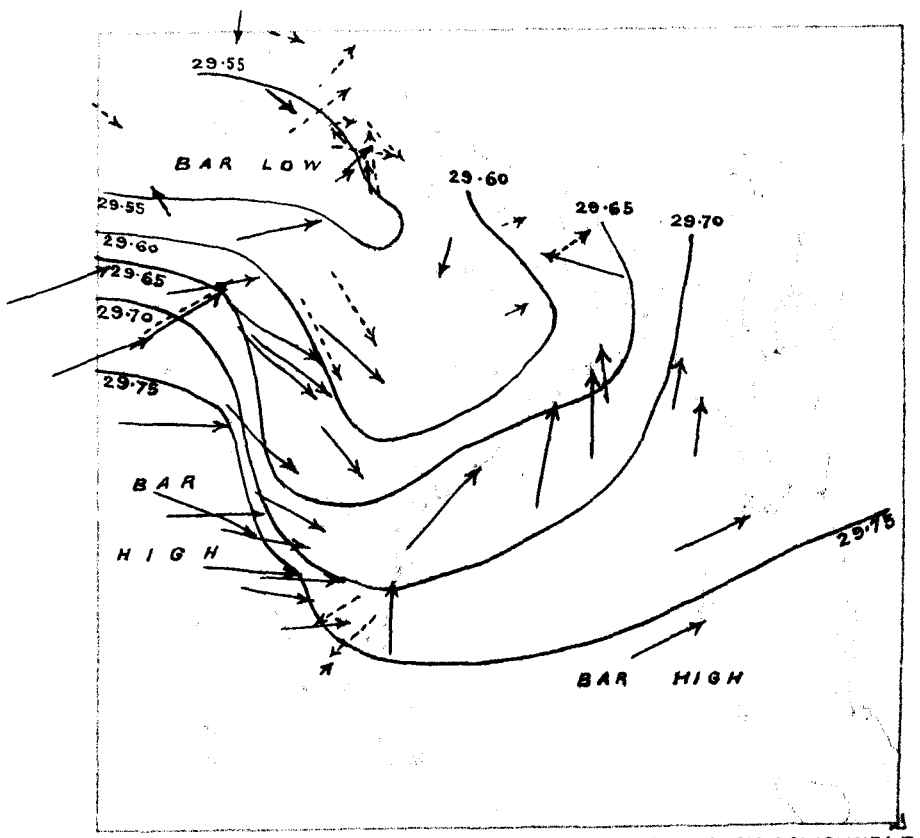


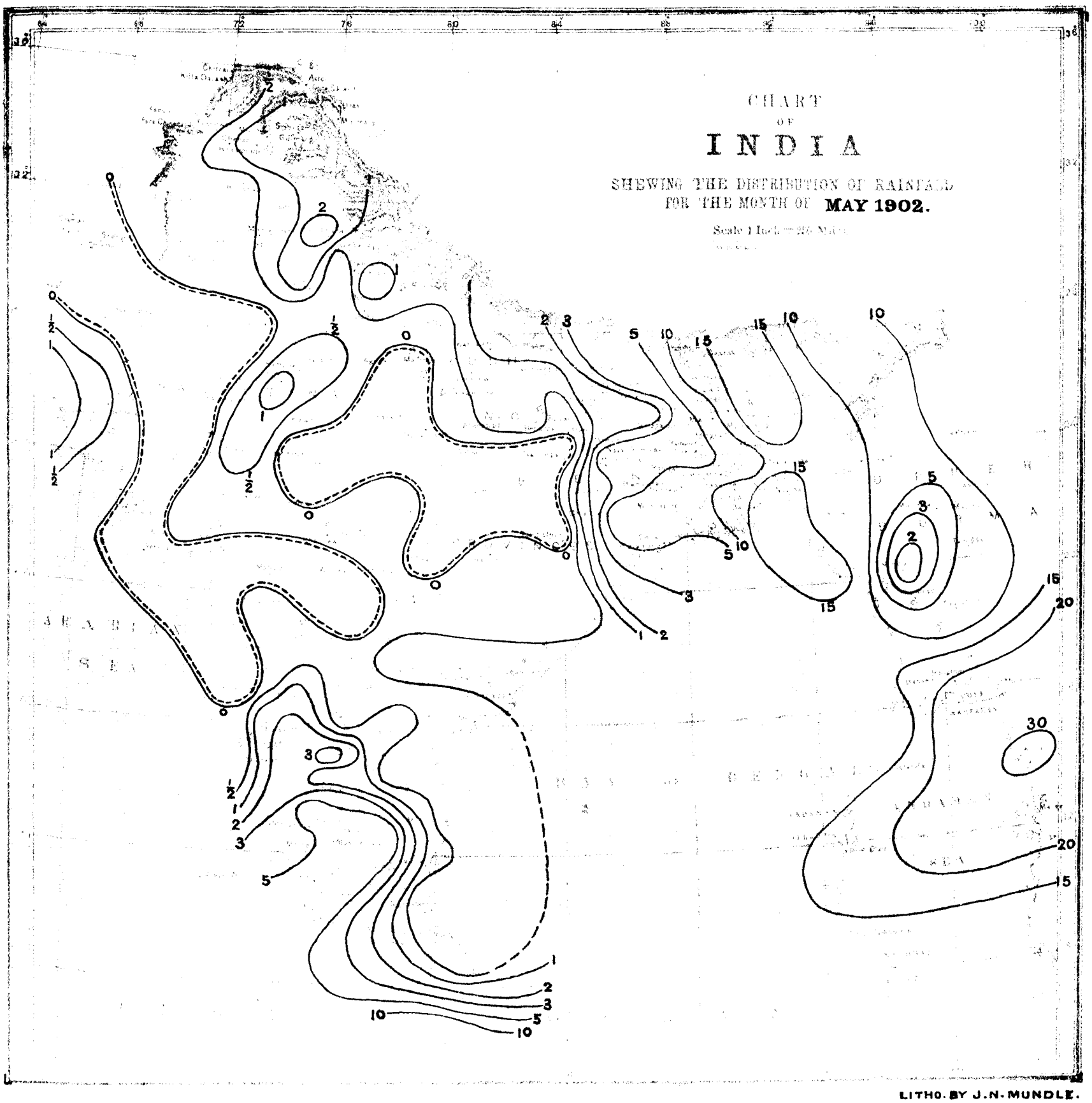
CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF **MAY 1902.**



LITHO. BY J.N.MUNDLE.

Explanation.

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{1}{20}$th of an inch being equal to 100 per cent.



Explanation

The Chart shows the Distribution of Rainfall by means of Isohyetal Lines or Lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India (182 in number), except those at the Hill Stations over 5,000 feet in Elevation. The double line or lines of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those in which it was actually or practically nil (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.

LITHO. BY J. N. MUNDLE.

Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable and useful means. The country is divided into 57 areas, over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both actual and normal for the month) have been calculated, and the numbers given in the centre of each division (usually with a + or − sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The normal average rainfall is also given below in smaller figures enclosed within brackets so that the percentage variation can be at once estimated. The name of the district can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim
2. Lower Burma Deltaic
3. Central do.
4. Upper do.
5. Arakan
6. Lost Barometer
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. North Western Provinces, East
19. South Oudh
20. North do.
21. North Western Provinces, Central
22. Do. do., West
23. Do. do., East Submontane
24. Do. do., West do.
25. Do. do., Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
33a Travancore
34. Madras, South Central
35. Coorg
36. Mysore
37. Konkan
38. Bombay Deccan
39. Hyderabad, North
40. Khandesh
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
49a Do. do.
50. Rajputana East, Central India West
51. West Rajputana
52. Madras, East Coast, North
52(a). Do. do. do. (a)
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, JUNE, 1902.

INTRODUCTION.

THIS review of the weather in India during the month of June 1902 is based on observations taken daily at 8 A.M. at 224 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 64 stations. In the rainfall summary the rainfall data of the meteorological observatories and the rainfall statements of the month published by the Provincial Governments that had been received up to the date of the preparation of the review, are utilized. A summary of the weather in the Bay of Bengal and the Arabian Sea, derived from information extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given.

Summary of the chief features of the weather in India during the month of June, 1902.

The most important features of the weather during June, 1902, was the advance of the monsoon currents over the Arabian Sea to the Indian land areas during the second week of the month and their retreat and general failure during the second half of the month.

It seems, therefore, desirable to give a brief account of the daily changes in the various meteorological elements which may be supposed to condition these large actions over the monsoon area, and to endeavour, so far as the data available at the time of writing will allow, to ascertain the influences conditioning the failure of the monsoon currents during the second half of the month.

It may be supposed that whatever the ultimate cause of this failure may be, the chief immediately conditioning circumstances would reveal themselves mainly in the varying pressure conditions and in the winds obtaining from day to day over the area in question, and, as a first step towards the determination of the cause and to facilitate future investigation, it seems desirable to describe and summarize the main features of the daily pressure changes over the whole of the land and sea areas, so far as data are available, and to indicate, wherever possible, the chief abnormal features of the pressure distribution and of the winds.

For this, besides the data published in the Indian Daily Weather Report, the following are available at the time of writing:—

(1) The Daily Bulletin Meteorologique de l'Observatoire Physique Central, St. Petersbourg, which gives data for Europe and parts of Western and Central Asia.

(2) Daily wind and, in some cases, pressure data, collected from the logs of ships entering the ports of Calcutta and Bombay, the data referring mainly to the Bay of Bengal and the east of the Arabian Sea.

(3) Daily wind and, more or less complete, pressure data for the following stations: (*a*) Kashgar, Gilgit and Chitral; (*b*) Muscat, Bahrein, Bushire and Bussorah; (*c*) Teheran, Ispahan and Baghdad; (*d*) Perim, Zanzibar and Seychelles; (*e*) Port Blair, Penang and Singapore.

(4) Daily wind data for a few stations in North Persia, Afghanistan, Baluchistan and the North-West Himalayas.

(5) Daily wind and pressure data for the Nile valley and for Suakin on the Red Sea.

(6) The daily standard weather charts of Australasia, issued at Brisbane.

The following were the main abnormal features obtaining in the region under consideration at the beginning of the month:—

(1) Pressure was in considerable excess over the west coast of the Indian Peninsula and Bengal, and in moderate general excess over Burma, North-East India and the Peninsula.

(2) Pressure was in moderate excess in Asiatic Turkey and North Persia, in very considerable excess in the Trans-Caspian region as represented by Tashkent, and in large excess over Scandinavia, where an anti-cyclonic area shewed, in the central area of which pressure was about four-tenths of an inch above normal.

(3) Pressure was in large defect in West Siberia, and normal or in slight to moderate defect in the Baikal region, and also, so far as the imperfect available data indicate, in the part of the Central Asian area, denoted by Kashgar, and it is possible that to this low pressure area the relatively low pressures shewing at the time in the North Punjab were related.

(4) In the region of the South-East Trades, on the other hand, pressure was in slight to moderate defect, the defect being greatest at Zanzibar, and from there diminishing northwards, but shewing as far north as South Arabia.

The following gives an account of the general course of the winds in the Indian Seas at the beginning of June:—

(1) There was the usual indraught from the west across the north-east of the Arabian Sea towards the low pressure area in the Central Punjab.

(2) Moderate south-west winds held over the centre and south-west of the Arabian Sea.

(3) In the east and south-east of the Arabian Sea, however, pressure was very uniform, the result of the unusually high pressures obtaining there at the time, and, accordingly, the south-west winds of the west and centre were, in the east of the Arabian Sea, replaced by calms and light variable winds, mainly from the north-north-west.

(4) In the centre of the Equatorial belt, a region for which, unfortunately, data are very scanty, pressure seemed to be very uniform and, on the 1st, winds were irregularly cyclonic round a centre lying not far from the Equator about Long. 68° E.

3rd June.—A large and widely-extended downward movement of pressure was initiated over the Indian region on 6the 3rd and continued more or less generally till the 4th. On the 3rd it was most marked in Upper Assam, the head of the Bay and the North Punjab, in all which areas the fall amounted to about a twelfth of an inch. A similar fall occurred in the North-West Himalayas and in the Central Asian region, the fall being probably largest at Omsk, where pressure was now about three-tenths of an inch in defect. The fall was also very marked in the Caspian and Trans-Caspian region, as well as over the greater part of South-East and Central Europe and in Scandinavia.

On this date pressure rose briskly at the mouth of the Persian Gulf, and slightly in Central and North Persia. This action was, however, relatively local and unimportant, except in so far as it increased the excess of pressure obtaining over the north-west of the Arabian Sea and diminished the monsoon gradients in that area.

In consequence of the conditions noted above, winds were unusually light and feeble over the greater part of the Arabian Sea, and were strong only in the neighbourhood of Socotra. The Equatorial area of irregularly cyclonic winds, which on the 1st shewed in Long. 68° E. seemed to have subsequently moved westwards and on the 3rd seemed to be central about Long. 60° E. Thus, the winds over the greater part of the south-east of the Arabian Sea were much more northerly than usual, while in the centre of the Equatorial belt winds were easterly and north-easterly. It is not improbable that the initiation of this irregularly cyclonic circulation was primarily due to the relatively high pressures obtaining over the east of the Arabian Sea, while lower pressures than usual were holding over the centre of the Equatorial belt. On this date winds were strong at the Seychelles, where, by this time, the influence of the Equatorial whirl had made itself felt. Winds were, however, very weak at Zanzibar. In the Gulf of Aden, winds seemed to form part of the indraught to a low pressure area in South Arabia.

It may be noted here, that the general fall of pressure in India on the 3rd seemed to spread over India from the north or north-east. It was greatest in North-East India and the north and east of the Punjab, and was little marked in the centre in the Gangetic Plain, as if the action had been checked by the high ranges of Kumaon and Nepal, but had extended more readily through the breaks in the rampart of the Himalayas, *viz.*, through the gap of the Brahmaputra Valley on the east, and through the openings in the chain towards Kashmir and Little Thibet on the west. Be this as it may, it is certainly notable that the fall was less marked in the part of the Gangetic Plain which lies directly under that region in the chain of the Himalayas where the peaks are highest and the chain most continuous.

4th June.—On the 4th the changes were generally similar in character to those of the 3rd. The following are the more important features:—

(*a*) Pressure fell generally over the Indian area (except over the south-west of the Peninsula), the fall being slight in North-East India and brisk to rapid in North-West India. The fall was very rapid in the region to the north-east of the Caspian Sea.

(*b*) In the Indian Ocean, the chief changes were apparently conditioned by the continued westward movement of the whirl, which on the 4th was apparently central to the

north of the Seychelles, where the wind had strengthened and changed direction from south to about east. On this date, also, the winds at Zanzibar had strengthened, and veered from south-east to south-south-west, probably under the influence of the whirl which was moving westwards along the Equatorial belt.

(*c*) Winds remained almost unchanged in character over the Arabian Sea, except that, in consequence of the steady deepening, of the Punjab depression, under the steady fall of pressure over North West India, the indraught into that area from the north of the Arabian Sea had increased, and westerly winds now held as far west as the mouth of the Persian Gulf and probably over the greater part of the north of the Arabian Sea. Meantime winds seem to have fallen off somewhat in strength in the south and south-west of the Arabian Sea, a consequence, probably, of the westward movement of the Equatorial whirl, which was now far enough west to check the free flow northwards of the Trades current over the west of the Equatorial belt.

(*d*) Pressure was now relatively low in the extreme north of Arabia and the pressure and wind data at Bussorah seemed to indicate the existence of a low pressure area a little to the west of that station. In the absence of sufficient data, however, it is impossible to locate this depression with precision.

Although improving, conditions were still unfavourable for the northward extension of the Trades current, and pressures were still in more or less considerable excess over the west coast of India, particularly over the Konkan. The excess probably extended westwards over the greater part of the east and north of the Arabian Sea, but it is impossible to estimate its amount over the sea area with accuracy.

5th June.—On the 5th important changes appeared.—

(*a*) The Central Asian depression had moved westward and now shewed in the Russian charts, with its centre about due north of the Sea of Aral in about Lat. 54° N., where pressure was at least a third of an inch below normal. At the same time another low pressure area had moved southward from the Arctic Sea over the east of Scandinavia, and, under the influence of the movements of these two low pressure areas, the European anti-cyclone had been displaced southwards and at the same time reduced very considerably in intensity. Highest readings in Europe now shewed over the Black Sea region, where pressure was about a sixth of an inch in excess.

(*b*) There was a brisk to rapid recovery of pressure at Baghdad due, possibly, in part to the movements of the low pressure area in North Arabia, but probably in part, also, to the southward movement of the high pressure area now shewing over Central and South-Eastern Europe.

(*c*) With this exception, the pressure changes on the 5th were almost everywhere downwards. The fall was brisk to rapid at the North Persian stations, and very rapid at Tashkent, and in both areas was probably due to the movements of the West Siberian depression. It was also brisk at the South Persian stations, at the mouth of the Persian Gulf, along the Kathiawar Coast, and probably, also, across the north of the Arabian Sea. It is not unlikely that this fall, which was continuous from Trans-Caspia to Kathiawar, was, in part at least, related to the movements of the Asian depression.

(*d*) A rapid fall also occurred in North-East India and the Bay area which was greatest in Upper Assam. It is probable that this fall was not connected with the fall over the west of the Peninsula. The fact that it was greatest in Upper Assam would seem to indicate that, like the fall of the 3rd, it spread over North-East India through the Dibrugarh gap, and was due to some large general action in the Thibetan or Chinese area. Also, it was separated from the fall on the west coast by a region of no, or, only very slight, fall which covered the greater part of the centre of the Peninsula.

(*e*) On this day pressure fell slightly at Zanzibar, and rose at the Seychelles, a consequence, possibly of the continued westward movement of the Equatorial depression, which on the 5th seemed to be central near the Equator about Long. 56° E.

Pressure was now in more or less considerable defect in Burma and the north of the Bay, and in Assam. It was still, however, in moderate excess on the Konkan Coast, and probably in slight excess over the neighbouring sea areas, but was below normal over the greater part of the Persian area and in the North-West Punjab. It was practically normal at Zanzibar, and in slight defect at the Seychelles.

6th June.—(*a*) The depression in East Russia had crossed the Urals, and pressure had risen rapidly to very rapidly in the Caspian region and briskly at Teheran. The rise, however, did not extend far towards the east, for pressure was still falling more or less rapidly at the Central Asian stations of Omsk, Tashkent and Kashgar; for although the Russian depression had moved westward, it had at the same time intensified very considerably, pressure now being about three-quarters of an inch in defect in its central area, or nearly four-tenths of an inch more than the defect at its centre on the 5th. Consequently, the westward movement led to no rise in the west of Central Asia, although slight rises were reported from Gilgit and Chitral.

(*b*) Within India the changes were irregular, being generally upward in North-East India and downward in North-West India, as if the action, which on the previous day had caused the fall in North-East India through the Dibrugarh gap, had moved westward and was now affecting North-West India through Kashmir.

(*c*) Pressure had fallen more or less rapidly over the whole of the north of the Arabian Sea, the fall being slightly more marked on the Konkan than on the opposite Arabian Coast or at the mouth of the Persian Gulf. It is doubtful, however, if the fall was continuous over the whole intervening sea area. In point of fact, although it is difficult to establish from the marine pressure data, there were several indications that the falls in the east and in the north-west of the Arabian Sea were due to the initiation and development of two separate low pressure areas, one, in the Persian Gulf area, and one, off the Konkan. For on the 5th, and much more clearly on the 6th, the winds off the Bombay Coast shewed indications of the initiation of a diffused low pressure area, central some little distance from the land in about Lat. 16° or 18° N., while at the Persian Gulf stations the winds, which

had on the 5th been generally north-westerly, forming part of the indraught to the Punjab depression, had by the 6th completely reversed their direction, and were now south-easterly, apparently forming part of the circulation round a low pressure area lying over the Persian Gulf, which seemed to have worked north-eastwards from Central Arabia during the preceding twenty-four hours.

On the 6th, the depression off the Konkan was affecting the winds along the whole of the Konkan Coast and seemed to be central about Lat. 16° N. Its precise position, however, on this, as on the previous day, is hard to determine with accuracy.

(*d*) At the Seychelles the wind had fallen off in strength, and the area of cyclonic winds in that region seemed to have practically disappeared.

(*e*) The chief feature of the winds in the Arabian Sea on this date, was their strengthening to the south of the Konkan Coast depression, where the depression gradients reinforced the natural gradients for south-west winds, and their weakening to the north of the depression area, where the depression gradients reduced the natural gradient.

From this date the weather in the Arabian Sea and on the west coast of the Peninsula was mainly conditioned by the development and advance of the Konkan Coast depression, a full account of which, based on all the available data, is given in the section "Storms of the month."

7th June.—The changes on this day were generally slight. The following were the most important:—

(*a*) A general brisk to rapid fall of pressure over the whole of Southern Europe and the Mediterranean area which extended from the Iberian Peninsula to the Caspian, and to which was probably related the fall which occurred on this day at Baghdad and Bushire.

(*b*) A very rapid rise of pressure at Tashkent and the North Persian stations, probably due in part to the partial filling-up of the East Russian depression, and in part to its retrograde movement towards the north-east.

(*c*) A slight to moderate fall of pressure at Kashgar, Chitral and Gilgit, which it is difficult to associate with any general movement. For on this day pressure was rising in all surrounding areas for which data are available. It seems to have been mainly local in character.

(*d*) A general rise of pressure over the Indian region, greatest in the Upper Sub-Himalayas, which was probably to a large extent conditioned by a marked fall of temperature in that area.

(*e*) A general rise of pressure over the whole of the Arabian Sea as far south as Zanzibar and the Seychelles.

These changes left gradients almost unchanged over the Arabian Sea, and hence conditions in that area were generally much the same as on the previous day. Moderate to heavy rain had now begun on the South Konkan Coast, where the strong west winds in the southern quadrant of the storm off that coast impinged on the land.

Winds were still south-easterly at the mouth of the Persian Gulf, and easterly in the Gulf of Aden, the former being probably due to the indraught towards a depression over the Persian Gulf.

An area of light winds, where the circulation was irregularly cyclonic, shewed on this date in the north-east of the Bay of Bengal.

8th June.—(*a*) Pressure had fallen rapidly in the centre of Europe, where a depression, with a defect of pressure at its centre of nearly half an inch, was showing. At the same time, pressure had risen very rapidly in the north-east of Europe and in the west of Central Asia, shewing that the depression in that area had either filled up, or passed off to the north. Pressure was, however, still relatively low in that area, although in large excess in Trans-Caspia.

(*b*) Pressure changes were irregular in the North-West Himalayan area, pressure having risen at Kashgar and Chitral, but having fallen at Gilgit. As on the previous day, it is again difficult, through lack of sufficiently extended data, to connect the pressure changes in this area with the changes either to the north or the south. The fall at Gilgit may, however, have been related to the general fall in Further Kashmir on this day and the rise at Kashgar with the rise in Central Asia, while the rise at Chitral may have been connected with the slight rise which now shewed over the greater part of Persia.

(*c*) Pressure had risen slightly over the whole monsoon area, from Zanzibar to Assam (except locally in the storm area in the east of the Arabian Sea, where a slight fall had occurred) and from the Persian area to Tenasserim. The upward movements were, in general, slight, but it is a significant fact that they extended over practically the whole of Asia and the northern half of the Indian Ocean. A slight to moderate fall shewed at Penang and Singapore and the Australian data indicate that this may have been due to the eastward displacement of an area of relatively high pressure from the Sunda Islands towards North Australia.

The chief abnormal features of the meteorological conditions on this day were, hence, (1) a slight to moderate excess of pressure along the line of the Himalayas from Peshawar to Assam, greatest at the foot of the Kumaon Hills, and a slight excess over the greater part of the Peninsula (except in the neighbourhood of the depression area), in the Arabian Sea and the opposite coasts of Arabia from Perim and Aden to the mouth of the Persian Gulf; (2) slight defects in the south-east of the Bay area, in the west and (possibly) centre of the Equatorial belt; (3) slight defects in the North-West Punjab, and in the part of Central Asia denoted by Tomsk.

The depression off the Bombay Coast had intensified and moved slightly towards the north, and the indraught to it had probably increased. The winds in the southern quadrant of the storm continued to give moderate to heavy rain in the Konkan coast districts.

9th June.—(*a*) Pressure had continued to rise in North-East Europe and had risen rapidly to very rapidly at Tomsk. At the same time pressure had fallen rapidly at Tashkent, where, however, pressure was still in considerable excess.

(*b*) Pressure had fallen rapidly at the North-West Himalayan stations of Chitral and Gilgit and in Further Kashmir and slightly to briskly over the whole of India and Burma. The fall was, on the whole, greatest in North-West India, but was, at the same time, more marked in Assam and Upper Burma than in North Bengal, an indication

that the action had probably spread over India from the North. Its true origin, however, can only be surmised.

(*c*) The fall was, however, not confined to India, but extended over the greater part of the Persian and South Arabian area, and North-East Africa as far south as Zanzibar, but was, in general, slight over these areas, except at the mouth of the Persian Gulf where it was rapid, a consequence probably of the formation there of a small local depression.

In consequence of these changes, gradients had increased in the south of the Arabian Sea, but as pressure still remained in moderate excess on the Malabar Coast, the isobars in the south-east of the Arabian Sea exhibited a very abnormal trend northwards. The general effect of the distribution of pressure in the Indian Seas was, hence (1) to give an undue southing to the winds on and off the Malabar Coast; (2) to strengthen the winds on the Konkan Coast, and probably also to the winds over the greater part of the centre of the Arabian Sea; (3) to induce abnormal easterly and south-easterly winds on the Konkan Coast; and (4) to weaken the eastward movement of the air in the northern quadrant of the depression and generally over the north of the Arabian Sea. It is possible, also, that the influence of the Konkan depression extended on this day as far south as the Seychelles, for pressure had fallen there and the winds had veered from their normal south-easterly direction to south. The general lie of the isobars, so far as they can be estimated from the scanty and somewhat uncertain pressure data available for the sea area, also supports this conclusion. In other respects, conditions were little changed from those obtaining on the previous day.

10th June.—(*a*) Pressure had increased briskly in the east of Mediterranean and over the Black Sea, and with this general rise it is possible that the brisk rise at Baghdad on the 9th, and the moderate rise on the 10th, was related. In Central Asia and in the east of Russia the changes were generally slight. Pressure was in moderate excess in West Siberia.

(*b*) Pressure had fallen rapidly in the south-east of the Caspian region and pressure there was now about an eighth of an inch in defect.

(*c*) Pressure had fallen briskly to rapidly in the depression area in the east of the Arabian Sea and over the greater part of the West Coast, so that pressure was now normal in the south of the Peninsula and in moderate to considerable defect at the centre of the depression area. Also, pressure had fallen slightly to briskly over the greater part of the Indian region and there were some indications of the formation of a cyclonic area over Lower Burma, where pressure was now a tenth of an inch in defect.

(*d*) The changes in the Equatorial region were slight.

In consequence of these changes, the lie of the isobars in the Arabian Sea to the south of the depression was approximately normal, and the winds also approximatly normal in direction and strength over the greater part of the south and centre of the Arabian Sea and in the Equatorial region as far south as the Seychelles. On this day the winds at the mouth of the Persian Gulf had returned to easterly directions, and formed a part of the circulation round the Persian or North Arabian low pressure area.

The chief features of the day were, hence, (1) the deepening and concentration of the Arabian Sea depression; and (2) the appearance of a local low pressure area in the Persian Gulf region.

Elsewhere the changes were unimportant.

11th June.—The changes on the 11th were in general slight and of little importance. They were chiefly related (1) to the slight advance of the Arabian Sea depression in a north-north-westerly direction, its centre now shewing off the Kathiawar Coast; and (2) to the concentration of the Persian Gulf depression.

The changes in India were generally downwards, but were for the most part slight.

12th June.—On this, as on the previous day, the changes outside the storm area in the Arabian Sea were slight and unimportant. Within the storm area, however, pressure had fallen briskly, and the abnormal defect of pressure at its centre was now a quarter of an inch. Besides deepening, the depression had also extended its sphere of influence, and now seemed to have absorbed the Persian Gulf depression and to be affecting the winds and pressure conditions over the greater part of the Persian area, and as far west as Baghdad, where pressure had fallen very rapidly. The development of the low pressure area in the Persian region during the previous day or two had doubtless prepared the way for the intensification of the Arabian Sea storm, and on this date it was a storm of considerable intensity, affecting the winds and weather over the greater part of the Arabian Sea.

Pressure was now in moderate to very considerable defect over the whole Arabian, Persian and Indian regions, and in moderate defect in the Trades region. As, however, the defects from normal were greater in the north than in the south of the monsoon area, gradients for south-west winds over the Arabian Sea were somewhat steeper than usual. Pressure was also in considerable defect in the Caspian region, and it is not improbable that pressure conditions there were now beginning to be to some extent affected by the Arabian Sea depression.

13th June.—The only changes of importance on this day were those connected with the intensification of the Arabian Sea storm, at whose centre, off Porbunder, pressure was now about a third of an inch in defect. Very strong winds held on its southern and western quadrants, and a strong monsoon was blowing over the greater part of the Arabian Sea and on the west coast of the Peninsula. With the more or less rapid rise of pressure, however, on this day over the west of the Peninsula the isobars in the east of the Arabian Sea now shewed a tendency to resume their sharp northward trend before striking the Malabar and Konkan Coasts, and winds on the South Malabar Coast were again becoming irregular and light.

On this day, the feeble low pressure area which during the previous day or two had been slowly forming in the east of the Bay area concentrated and showed as a fairly well-marked depression with a centre about 100 miles to the south-east of Saugor Island.

Excessive pressures were now beginning to reappear

in the south of the Bay, but elsewhere in India pressure was in more or less considerable defect.

14th June.—(*a*) Russian data for the Siberian region were on this day entirely wanting, but it is probable that the moderate to considerable fall at Kashgar, and the slight to moderate falls at Gilgit and the Kashmir stations, were part of a general downward movement over the Central Asian area, which extended also into India and shewed along the hill and submontane areas from Peshawar to Assam. The action was most marked in the Upper Sub-Himalayas, where the fall was just under a tenth of an inch. In North-East Bengal the fall was doubtless greater, but it was largely local, and was probably mainly due to the northward movement of the Bay depression. Over the remainder of India pressure had risen slightly to briskly.

(*b*) In the regions lying to the north-west of India, however, the fall of pressure continued, being rapid at Ispahan, and moderate to brisk over the whole of the Arabian and Persian regions, as also over the greater part of South-East Europe and Trans-Caspia, where pressure was relatively low. The action of the Arabian Sea storm was now dominating the pressure conditions over the greater part of the Arabian Sea and the adjacent land areas to the north and west.

(*c*) Winds were meanwhile falling off slightly in strength in the west of the Equatorial region.

15th June—(*a*) Conditions were little changed in South-Eastern Europe except that pressure had fallen rapidly at one or two stations in that area, but in general the changes were slight. The low pressure area still shewed in the Trans-Caspian region.

(*b*) Pressure continued to fall in the Persian Gulf area, and the depression in the Arabian Sea had again somewhat intensified and was now central about 100 miles to the south-south-west of Kurrachee. In other respects conditions were little changed in the Arabian Sea.

(*c*) In India the changes were slight and generally upward, except at the foot of the Kumaon Hills and in West Bengal, where, as also in Further Kashmir and at Kashgar, a moderate to brisk fall had occurred.

16th June.—(*a*) On this day a very large rise of pressure occurred in West Siberia (as indicated by Omsk), due to the development and southward extension of an anticyclonic area over the regions of North-West Siberia. The rise seemed to be general, though slight, over the greater part of Trans-Caspia, North Persia and North Arabia, as well as North India, except in the areas indicated by Tashkent, Chitral and Peshawar, where, however, the falls were only slight.

(*b*) Pressure had, on the other hand, fallen rapidly in the centre of the depression area now shewing in the north-east of the Arabian Sea, about forty miles west of Kurrachee, where pressure was more than a third of an inch in defect.

(*c*) Pressure had risen moderately to briskly in the South Arabian area and in the west of the Equatorial belt, and winds had, at the same time, fallen very light at the Seychelles, where, during the preceding 24 hours, they only averaged about two miles an hour instead of eleven, as on the 15th. They had, at the same time, veered from about south-east to a direction almost due east. There were other indications that on this date the Trades in the west of the Equatorial belt entirely failed to cross the Equator, but had instead a feeble set to the west.

There were on this day, so far as can be judged, no large changes of pressure in the areas lying immediately to the north of the Seychelles, sufficiently marked to account for this large change in the Trades currents, and it can only be supposed that the actions producing these changes lay mainly to the south. Of these, however, we have little or no knowledge.

17th June.—By 8 A.M. on this day, the Kurrachee storm had passed northward into the Baluchistan area, and had, to a large extent, broken up and become merged in a shallow diffused depression with pressure probably about a tenth of an inch in defect at its centre, which lay to the north of Jask. Pressure had risen rapidly to very rapidly at Chitral and Ispahan, and extremely rapidly in Lower Sind. It rose slightly at Teheran and fell slightly at Baghdad, Bussorah and Bahrein. As on this day pressure changes in the Central Asian region were very slight, it is probable that the changes in the Persian area and in North-West India were chiefly related to the actions accompanying the breaking-up of the Kurrachee storm. The changes over India were generally slight, but everywhere upwards. As at the Seychelles pressure was steady, these changes had chiefly the effect of diminishing the monsoon gradients over the South Arabian Sea, and it is to be noted that on this and the following day easterly winds held over almost the whole of the western part of the Equatorial belt.

18th June.—Pressure had risen briskly at most of the Persian stations but was steady at Baghdad, where pressure still remained in very considerable defect, the result, possibly, of residual actions connected with the breaking-up of the Kurrachee storm. Elsewhere the changes were of no importance. They were, however, generally upward over India. North-westerly winds were reappearing in the south-east of the Arabian Sea, and pressure was now very uniform in that area. On the Konkan Coast readings were over a tenth of an inch in excess. The only area in India where pressure was deficient was North-East India, but the defects were only slight to moderate.

19th June.—The only feature of importance on this day was the formation of a low pressure area in East Arabia, with its centre probably to the south of the central area of the Persian Gulf. It affected the winds at the mouth of the Persian Gulf, causing them to veer to east.

Winds still continued weak and irregular in the west of the Equatorial belt.

Pressure rose slightly over the western half of India and briskly to rapidly in North-East India and over the East Coast. Pressure was now in moderate general excess over the whole of the Indian region, except in North Bengal and over Ceylon. The excess was greatest and exceeded an eighth of an inch over Gujarat, Khandesh and the West Satpuras.

It may be noted here that the failure of the Trades on the 16th seemed to develop first in the Equatorial belt, and that the rise of pressure over the Indian area, which developed only very slowly and gradually, took place *subsequent*

to that failure; and as the rise was apparently not connected with any very large and marked pressure changes to the north, it may fairly be inferred to have been the result of conditions in India, and was probably *more a consequence than a cause* of the weakness of the monsoon current.

20th June.—(*a*) Important changes appeared on this day over North-East Europe and the north-west of Asia. A well-marked anti-cyclone developed over the north of Russia in Europe, the excess of pressure at its centre being a little under half an inch. At the same time, pressure rose over the whole of the east of Europe and in Western Asia, the rise being brisk in the Caspian region, at Baghdad, and over the Persian Gulf area.

(*b*) The rise was also very rapid at Kashgar, but the reading here on this day seems rather doubtful. The rise was slight in Persia, over the greater part of India, and in the South-East Trades region. The rise was brisk at Ceylon and over South Madras, but no data are available for the region lying to the south of Ceylon, and hence it is impossible to connect this rise with other general movements, so as to decide whether it was part of a general, or was only a local, action.

(*c*) Slight to brisk falls, probably local in character, were on this day reported from Burma, and from the Kumaon and Simla Hills, and from Kashmir.

Pressure was now in considerable to large excess over the greater part of the Peninsula, and in slight to moderate excess over almost the whole of the remainder of India except in Kashmir, the Mussooree and Simla Hills, and the neighbouring submontane areas.

The winds had strengthened very remarkably at the Seychelles, rising from an average of 3½ miles an hour on the 19th, to 12½ on the 20th, the direction having, at the same time, changed from west to east. It is, however, impossible, from the scantiness of the data, to determine the actions which brought about this change.

21st June.—The changes on this day were generally slight—

(*a*) The Russian anti-cyclone seemed to have moved off to the east, as considerable increases of pressure were reported from the West Siberian stations, but the data are insufficient to reveal the precise nature of the changes. Pressure fell again over the Caspian and Persian regions, the fall being, however, everywhere slight. It also seemed to extend across the north of the Arabian Sea to the west of India.

(*b*) At the same time, pressure continued to fall slightly at Skardu and Leh, and a moderate to brisk fall was beginning to shew in North-East India, which may have been an indication that the action which caused the fall in Kashmir on the 20th had now passed eastwards and was affecting conditions in North-East India through the Dibrugarh gap. The fall was slight over the whole of the Bay area.

(*c*) Pressure had risen briskly to rapidly at the foot of the Kumaon Hills and in the West of the United Provinces, where the deficiency of pressure had now disappeared. Pressure still remained in considerable defect at Leh, and was normal or in slight defect on this day in the Brahmaputra Valley and in North Bengal. Elsewhere in India pressure was in moderate to large excess.

(*d*) Pressure continued to rise slightly at the Trade stations, but was still below normal at Zanzibar.

22nd June.—(*a*) The changes were again slight, but generally upwards, over South-East Europe, Trans-Caspia, Persia, the West of India, the Punjab and Further Kashmir as far as Gilgit.

(*b*) They were generally downward in North-West Asia, denoted by Omsk, and West Turkestan, denoted by Kashgar, and in North-East India, the east of the Peninsula, the Bay area, and in Burma.

Except at Omsk, Gilgit, some Kashmir stations, and in Sind, the changes on this day were everywhere slight.

(*c*) The rise over the Trades region continued. The winds had again fallen off very remarkably at the Seychelles, the mean daily velocity being 10 miles an hour on the 21st, and 3½ miles an hour on the 22nd, a change the causes of which the available data throw little or no light upon, for, so far as the very scanty data go, the winds to the north of the Equatorial region remained practically unchanged throughout. The change was probably due mainly to the action of a local depression.

Pressure was now in very large excess on the west coast, especially in Kathiawar, and in large excess at Muscat, on the opposite side of the Arabian Sea, and at Aden. Hence, as pressure was in only slight excess in the Persian area, gradients in the extreme north-west of the Arabian Sea were about as steep as, and probably steeper than, normal, but in a north-easterly direction, towards the Punjab, where the excess of pressure was almost as great as on the Kathiawar Coast, gradients were practically normal.

Gradients were, however, very much slighter than usual over the Equatorial region and in the south and south-east of the Arabian Sea. The difference of pressure between the Seychelles and Bombay on this day was under ·150″, instead of the normal ·350″, and was thus less than one-half of its normal value.

Winds were at this time very light over the greater part of the south of the Arabian Sea, and in the Equatorial belt.

23rd June.—Changes of considerable importance were initiated on this day—

(*a*) Pressure had fallen very rapidly over Central Europe as well as over the Caspian area. These changes were apparently associated with the somewhat rapid intensification of a low pressure area which shewed on the 22nd as an ill-defined depression, lying over South-West Russia, but which by the 23rd showed a well-marked centre between Riga and Moscow. The fall did not extend over the whole of Europe, pressure remaining steady in the extreme north and in the regions to the west of Long. 10° E.

(*b*) Although pressure had risen briskly at Omsk, it had fallen briskly to rapidly at Kashgar and Gilgit, as well as over Kashmir and the North-West Punjab. The fall was brisk in North-East India and over the greater part of North-West India, and slight over the remainder of India and over the Persian area.

(*c*) There was a slight rise at Zanzibar and a slight fall at the Seychelles.

There was thus on this day a general fall over an area

extending from the Baltic in a south-easterly direction over Trans-Caspia, Persia, West Turkestan to India, and on to Singapore. It is not improbable that pressure also fell over the greater part of the Thibetan Plateau, for pressure fell much more rapidly in the North-West Punjab, on the one hand, and in North-East India and Assam, on the other, than in the intervening area in India, the fall being least at Gorakhpur.

Pressure, on the other hand, rose in West Siberia, as indicated by the data for Omsk. But as on this day this was the only station in Siberia for which data are available, the character of the actions leading to this rise cannot be ascertained. There was, also, a slight rise of pressure on this day at Zanzibar in the extreme south-west of the Trades region.

In general, conditions of wind and pressure in the Trades region were similar to those obtaining on the 22nd except that the wind had increased very considerably at the Seychelles, in consequence apparently, so far as can be judged from the scanty data, of changes in the West of the Equatorial Belt, where gradients had steepened somewhat. It is not improbable that these changes were connected with the slight but steady rise of pressure that had been going on in the South-East Trades region from about the 16th. This steady rise was not confined to the Trades region but was, as we have seen, fairly general over the greater part of the lower and middle latitudes of the northern half of the Eastern Hemisphere. But being general, it left gradients largely unchanged, or even diminished them, since the rise was for the most part greater to the north of the Equatorial Belt than in, or to the south of it. This gradual decrease of gradient, however, seems scarcely sufficient to explain fully the very rapid drop of the winds at the Seychelles on the 16th, their almost equally rapid rise on the 20th, with complete reversal of direction, or their sudden fall on the 22nd. These rapid and violent fluctuations can hardly have been due to large or general actions, for during this period no such actions seem to have manifested themselves. They can only have been due to local actions, which, however, the scanty data are insufficient to elucidate.

The broader features of the general actions which shewed about this time seem, therefore, to have been somewhat as follows :—

(1) With the steady rise of pressure from the 16th onwards, gradients fell off throughout the whole monsoon area. This falling-off was probably absolutely greatest in the north of the area, but was probably relatively greatest in the Equatorial region, where gradients are normally much slighter than they are further north.

(2) On the 23rd pressure gave way briskly to rapidly in the regions to the north of the Equatorial Belt, so that gradients steepened from the Seychelles northwards, and it is to be noted that on this day the wind force at the Seychelles increased from an average of 3½ miles an hour to an average of 8½ miles an hour. It is, further, to be noted that pressure at the Seychelles was actually higher on the 22nd than on the 23rd, but the wind did not increase on the 22nd, and only increased when pressure gave way to the north, on the 23rd.

(3) The increase of the wind strength on the 23rd was, therefore, apparently, in part at least, conditioned by (*a*) the high pressure obtaining in the Equatorial region on and about the 23rd, and (*b*) the fall of pressure which occurred on this date in the regions to the north of the Equatorial Belt.

(4) The only data for this period which we possess for the regions to the south of the Seychelles are those telegraphed from Mauritius. And although these are only mean weekly data, they shew fairly clearly that pressure rose steadily in that area for about three weeks from the second week of the month, and that by the week ending the 28th June was probably very approximately normal. Subsequent data from Mauritius also shew that the rise continued during the week ending 5th July, when pressure was apparently in slight excess. There was, thus, at Mauritius, a steady rise of pressure from the week ending 14th June, to the week ending 5th July, the mean variation from normal in the former week being a defect of over a tenth of an inch, and in the latter a slight excess of ·021″. It seems, therefore, possible to infer that the abrupt fall in the wind strength at the Seychelles on the 16th may have been conditioned as much by the low pressure to the south, as by the excessive pressure to the north, of the Equatorial Belt. Were our data as complete for the sea area to the south as for the Indian and other land areas to the north, it would probably be found that on the 16th, when the wind at the Seychelles fell off markedly in strength, the gradients fell off, not only to the north, as they are known to have done, but also, and perhaps relatively much more markedly, to the south, where gradients are normally slighter. In point of fact, the mean weekly gradients in the Indian Ocean were, during the second week of June, reversed in direction, tending *south* instead of north, the mean pressures of the week at Mauritius and the Seychelles being 29·890″ and 29·950″, respectively, instead of the normal, 29·995″ and 29·981″, respectively. These figures shew in a striking manner the very abnormal character of the conditions prevailing at this time in the centre and south of the Indian Ocean. If these mean weekly data are considered as indicating approximately the actual gradient, they would amply suffice to account for the extraordinarily weak winds which held at the Seychelles during the third week of the month. It is thus probable that the westerly winds which held during the third week of June over the Arabian Sea were chiefly winds of local indraught to the heated areas of India, Persia and Arabia, and were not linked on to the Trades circulation, as they normally are at this time. They had traversed only a comparatively narrow breadth of sea, and were hence not highly charged with moisture and were of little or no value as rain-bearing currents.

(5) The above seems to suggest that the comparative failure and retreat of the monsoon winds from the Indian area during the third week of the month was at least as much due to abnormally low pressures to the south, as to the prevalence of unfavourable conditions in the Indian region itself. Conditions were, doubtless, somewhat unfavourable in India, particularly on the West Coast and probably to a moderate extent in the north of the Arabian Sea and over the adjacent land areas, but reasons have been adduced for supposing that these unfavourable conditions were themselves only *sequelæ* of the general

failure of the Trades in the south, being probably due more to diminished ascensional movement (this, in turn, a result of the diminished precipitation, due to the general failure of the currents) than to any positive actions spreading over India from the north, although such actions were probably also present.

(6) *If this is so, the true cause of the failure of the monsoon over the Indian seas during the third week of June, 1902, is probably to be sought for mainly in the heart of the Indian Ocean and in the conditions prevailing there, rather than in either the Equatorial belt or in the regions lying to the north of it.*

To determine the actual *causa causans* of these abnormalities in the centre and south of the Indian Ocean is doubtless an extremely difficult problem, but some advance will have been made towards its solution if the true *locale* of the abnormal action has been accurately indicated.

The prosecution of further enquiry, however, would seem to demand, in the first place, data to shew the precise meteorological conditions obtaining from day to day over the *whole* of the Indian Ocean and not merely over the Equatorial belt, and, in the next place, in order to connect these conditions with other conditions prevailing, perhaps, still more widely, similar data for the Australian region on the one hand and for the African region on the other.

24th June.—(*a*) Pressure on this day rose briskly to rapidly in Central Europe where the depression shewing on the 23rd had to a large extent filled up. The rise was brisk in South-East Europe and in Asia Minor and over the east of the Mediterranean, but the fall continued in Trans-Caspia and over the Caspian itself, where pressure had fallen rapidly, and a small local depression seemed to have formed.

(*b*) Pressure also fell slightly at Baghdad, the Persian stations, and in the Persian Gulf. It rose very rapidly at Chitral, but it is doubtful if the reading is quite reliable.

(*c*) Pressure was steady at Tashkent, but fell briskly to rapidly at Kashgar and Gilgit, as also at the more northerly of the Kashmir stations. Siberian data are unfortunately for this day entirely wanting and it is hence impossible to indicate fully the true nature of the pressure changes in Turkestan.

(*d*) In India the pressure changes were generally downwards, but were in general only slight, except in the Bay area and in Gujarat and Sind.

(*e*) Pressure fell slightly in both the east and the west of the Equatorial belt, at Singapore and Zanzibar, and was steady at Aden and Perim.

The changes in the sea area on this day were slight, the most important being a slight tendency for the winds to return to their normal directions in the centre and south of the Arabian Sea.

It may be noted that on this day pressure was in moderate to considerable defect over the whole of North-East India, Burma and the Bay area, including the east coast of the Peninsula, the defect being largest in Assam, where it was about a tenth of an inch. Pressure was also in considerable defect at Leh and some other of the Kashmir stations, the general distribution of pressure seeming to indicate the existence of an area of abnormally low pressure in the Thibetan region with a centre apparently to the north-east of Dibrugarh. It is possible that the fall of pressure on this day, noted in (*c*) above, may have been related to the movements of this low pressure area. There are, however, no data to indicate its true position or movements.

25th June.—Important changes occurred on this day—

(*a*) The rise of pressure in Europe which began on the 24th, continued, and was apparently due to the advance over Europe from the north-west of an area of high pressure, whose centre lay on this day apparently somewhere to the west of Scandinavia. In Scandinavia itself pressure was about four-tenths of an inch in excess (as judged by the normals given in the Atlas Climatologique of the Russian Empire). In the Black Sea and Caspian regions, pressure was, on the other hand, about normal, and in West Siberia (so far as can be judged from Russian data, unfortunately on this day very scanty,) about a quarter of an inch in defect.

(*b*) Pressure had risen slightly at Tashkent, rapidly at Kashgar, and very rapidly at Gilgit and Dras. The rise was rapid at the other Kashmir stations, and in the North-West Punjab generally, as also at Dibrugarh in the Upper Brahmaputra Valley. The rise was brisk over the greater part of the remainder of Upper and North-East India and Burma. The rise was less and less marked in a south and south-westerly direction, towards a large area covering the Konkan, the Deccan and the West of the Central Provinces, where pressure had fallen slightly.

(*c*) There was a slight fall at Chitral and at most of the Persian stations, most marked at Jask, as well as at Aden, Perim, Zanzibar and the Seychelles. It hence seems probable that the fall on the west coast extended across the centre of the Arabian Sea to the Arabian area, and that over the Arabian Sea area (except off the Kathiawar and Sind Coasts and in the extreme north-east) the fall was, if slight, fairly general.

The above changes in the Indian region seem to have been to a large extent conditioned by the withdrawal of the low pressure area which was supposed to have lain yesterday over the Thibetan region. There are some reasons for supposing that the fall at Chitral and in Persia may have been conditioned by the development of an area of relatively low pressure in South-East Persia and West Baluchistan.

On this day pressure was over a fifth of an inch above normal in the North-West Punjab, and from there the excess diminished towards the south to a region where pressure was normal, which extended along the south of the Bay from Burma to Ceylon and thence in a westerly direction along the Equatorial belt. To the south of this belt, at Zanzibar and the Seychelles, pressure was in moderate defect.

On this day, in consequence of the above changes, the lie of the isobars in the Arabian Sea was much more normal than they had been for some days previously. Winds, also, had increased in force at the Seychelles.

26th June.—(*a*) On this day the pressure changes in Europe and Central Asia were generally upwards. At Tashkent the rise was rapid.

(*b*) Pressure had risen over the whole Indian area, ex-

cept at Colombo, on the Malabar Coast, and at Aden and Zanzibar. The rise was rapid at Teheran, Ispahan, Gilgit and all the Kashmir stations, and was brisk to rapid over the greater part of the Indian region north of Lat. 16° N. The rise was slight over South-East Persia, where the depression already noted was still showing.

Pressure was now in large to very large excess over the greater part of Upper India, the excess being over a quarter of an inch in the North-West Punjab and diminishing from that slowly towards the north and north-east, and rapidly towards the Persian area as also towards the south. Pressure was between a tenth and a twentieth of an inch in excess over the Persian Gulf, and in slight excess at Aden, and was about a tenth of an inch in defect at Zanzibar.

The wind had fallen off slightly in strength at both Zanzibar and the Seychelles and was more easterly than usual at the latter station.

27th July.—The changes on this day were generally slight, the following being the most important:—

(*a*) The anti-cyclonic area in Western Europe had moved a little to the south and was apparently now central over Holland. In consequence of this southward movement, pressure had increased over the Black Sea and Caspian areas and over South-East Europe generally. Pressure was apparently very uniform in Central Asia generally, the extremely low pressure reported from Barnaul being somewhat doubtful, for it was not only not supported by the readings at neighbouring stations, but disappeared entirely during the next twenty-four hours.

(*b*) Pressure rose slightly at Baghdad but was steady or fell slightly at the stations at the head of the Persian Gulf. As pressure rose rapidly at Jask on this day, it seems probable that the shallow depression which on the 26th shewed to the north of Jask, had moved westward and seemed, from the wind directions as well as from the pressure data, to be now central to the North of Bahrein.

(*c*) The pressure changes in Turkestan, the North-West Himalayas, Further Kashmir and over India were slight and for the most part upward, being downward only along the hills, in the Punjab and over the South of the Peninsula.

(*d*) Pressure had risen rapidly at Zanzibar and slightly at the Seychelles, and was now normal at the former, and in slight excess at the latter station.

In other respects conditions were little changed.

It is interesting to note that on this day the pressure changes were generally upward over the greater part of Europe and Asia. It is also interesting to note that at Perth in West Australia, pressure also rose rapidly on this day. It, however, fell briskly at Derby in North Australia, and an examination of the Australian charts seems to shew that the Australian changes were due, not so much to the development of high pressures over the south-east of the Indian Ocean, and the extension of their influence towards the neighbouring land areas of West Australia, as to a marked development of the anti-cyclonic conditions which normally characterize the pressure distribution in the interior of Australia at this season of the year. From the 27th June to the end of the month, the Australian anti-cyclone steadily intensified, and at its centre on the 30th pressure was little short of half an inch in excess.

The excess, it may be noted, seemed to be chiefly confined to the land areas in Australia and did not extend appreciably over the neighbouring seas. Similar conditions seem to have held in Africa, for the rise was much more marked at Zanzibar than at the Seychelles, and it would be interesting to learn if similar conditions held also in South Africa.

28th June.—Large and important changes occurred on this day—

(*a*) In the European region, where, however, the changes were less strongly marked than elsewhere, the centre of the anti-cyclone seems to have continued its southward movement and was now central over the south of the German Ocean. It seemed to have at the same time contracted somewhat. Pressure remained steady over the greater part of South-East Europe but had fallen in the east of Russia.

(*b*) At Ispahan and Baghdad pressure fell briskly to rapidly, in consequence, apparently, of the westward movement of the Persian Gulf depression.

(*c*) In Turkestan, as indicated by Kashgar, pressure had fallen briskly, and at Gilgit very rapidly. Brisk to very rapid falls were also reported from the Kashmir stations and from stations in the North Punjab. It hence seems probable that the main centre of the action was near Gilgit, and that it extended almost up to Lake Balkash on the north, to Chitral on the west (where pressure was steady), and on the south over the greater part of India. It is impossible to further define the scope of the action, for no data are available for the regions to the east of Gilgit. The fact, however, that the fall in Upper Assam was only moderate seems to indicate that the action did not extend far eastwards into Thibet.

(*d*) In the Trades region, pressure was steady, and it seems likely that the influence of the fall in India did not extend south of the Equator.

The true nature of the action in North India is difficult to determine. The scanty available data seem to indicate that no actual depression had appeared at Gilgit, for pressure was still in moderate to considerable excess in Kashmir generally and in very large excess in West Siberia.

The effect of the changes in India was to reduce the excess of pressure in the Punjab, so that instead of being, as on the 26th, a quarter of an inch in excess, it was now little more than a tenth of an inch above normal. From the Punjab the excess diminished rapidly to the south and south-west, but slowly towards the south-east. Pressure was now in defect in the extreme south of India, and normal or in only slight excess in North-East India. Pressure was also practically normal in the west of the Equatorial belt, but was in moderate to considerable excess in the north and north-west of the Arabian Sea.

29th June.—Important changes were again reported from almost all parts of the Asian region.

(*a*) The European anti-cyclone had retreated westward and had practically passed off from the land area. Its movements were probably largely conditioned by the southward movement of a small low pressure area over

Lapland, while at the same time a large low pressure area, in which pressure was over quarter of an inch in defect, had developed in the region of Tobolsk in North-West Siberia. The development of this depression caused an extremely rapid fall at Omsk, (about half an inch, if the data are correct) and a very rapid fall (about one-fifth of an inch) at Tomsk, and a moderate fall at Tashkent.

(*b*) At Kashgar, however, a moderate rise, and at Gilgit a slight rise, occurred. At the stations in Further Kashmir, on the other hand, a moderate fall was reported, which may have been related to the general fall over India, a fall which was, on the whole, most marked in North-West India, but was only slightly less in North-East India.

(*c*) Pressure fell slightly to moderately at Teheran and Baghdad, and briskly at Ispahan and Chitral, apparently, in consequence, of the continued development of the Persian depression, which now seemed, from the wind data, to be central in East Central Persia, and with which the fall in the Punjab may have been connected. It is possible that the fall in North-East India was not connected with the fall in the Punjab, for the latter, which, indeed, seemed to spread from a centre lying to the north, was separated from the former by a belt of comparatively slight fall, running from the South-East Punjab in a south-westerly direction over the west of Rajputana and the Central Provinces. Pressure was steady or had risen slightly over the East Coast.

(*d*) In the Equatorial region pressure fell, but only by very slight amounts.

In consequence of these changes, pressure was now in moderate defect at Baghdad, and probably also over the greater part of Persia, although the absence of reliable normal data for this area makes it impossible to ascertain this definitely. Pressure was about normal in the extreme north of the Punjab, and in slight to moderate defect in North-East India, as also over the south of the Peninsula.

Pressure was still practically normal in the Equatorial region.

The isobars were now lying much more nearly east and west than they had been for many days previously, and were striking the West Coast much more perpendicularly, having almost entirely lost their northward trend in the east and south-east of the Arabian Sea. Winds were consequently also returning to normal directions over that area.

30th June.—(*a*) In Europe conditions were little changed. The two low pressure areas noticed on the 29th, one in Lapland, the other near Tobolsk, seemed to have coalesced and a single depression now shewed with its centre lying over Central Russia, where pressure was now about four-tenths of an inch in defect. Pressure was about normal or in very slight excess on this day in West Siberia, as indicated by Barnaul. Pressure had, however, fallen rapidly at Tashkent and Gilgit. But as at Kashgar and in further Kashmir the pressure changes were upwards it is possible that the Gilgit reading was incorrect, and that the reported rise in Kashgar was real and to be associated with the general rise in Kashmir, a view which is to some extent supported by the fact that pressure rose slightly on this day at Chitral. In point of fact, if Gilgit be neglected, the data shew that on this day pressure was either steady or rose more or less briskly over the whole region extending from Kashgar to Port Blair and from Baghdad to Dibrugarh in Upper Assam, the rises being replaced by slight falls only in a few local areas of no importance. The rise was brisk in Central Persia, in Turkestan and, locally, in Central Bengal.

Summary.—The above indicates that the main actions which affected conditions in India and over the Indian seas during the month were the following :—

(1) At the beginning of the month an area of irregularly cyclonic winds shewed in the centre of the Equatorial belt within which a shallow depression may have been forming. This area of cyclonic winds subsequently moved slowly westwards, and probably disappeared not far from the African Coast about the 6th. Its effect on the wind circulation seemed to be slight throughout, and was mainly manifested by an increased northing of the winds in the south-east of the Arabian Sea, when the north-east quadrant of the depression lay over that area, and by an increased easting of the winds over the south-east quadrant. As it moved westward along the Equatorial belt, it seemed to check the northward passage of the Trades, for they advanced northwards strongly only after it had disappeared.

(2) A low pressure area shewed at the beginning of the month in Western Asia, apparently central near Omsk, and although its precise position and character cannot be certainly determined from the scanty data it is remarkable that a large general fall of pressure should have occurred over India simultaneously with similar falls in the centre of Asia, which were undoubtedly related to the movements of the Siberian depression. Although there are too many gaps in the data to warrant the assertion of a direct connection between the two actions, at least an indirect relation seems to be indicated.

(3) Besides the above, there are some indications that a second depression or storm affected conditions to the north-east of India during the 5th and 6th. It seems, however, to have been a much less deeply marked storm than the previous one.

(4) In India pressure was on the 6th in considerable defect in North-West India and over the Bay, and was in excess only over the South Malabar Coast and in the Deccan and the West of the Central Provinces, the excesses being, however, only slight. From the 6th or 7th to the 16th the weather of India was largely conditioned by the development and advance of a cyclonic storm which formed in front of the advancing monsoon. It first shewed a definite centre off the North Konkan Coast about the 9th or 10th, and subsequently moved northwards almost parallel to the coast till it crossed the Mekran Coast on the 16th some thirty miles west of Kurrachee. During this period no large and widely extended action seemed to affect conditions in India from the north. Hence the general history of the period is bound up with the history of the storm, a full account of which is given in another section of the review.

(5) On the 16th winds fell very light at the Seychelles, and continued weak and variable till the 23rd, when they increased in strength somewhat abruptly and thereafter continued moderate to strong till the end of the month. The slight but approximately continuous and steady rise of pressure, which began over India in the middle of the second week and persisted till about the 23rd, and which seemed to have been but little conditioned by actions originating outside India, was probably, to a large extent, the result of the weakness of the monsoon and of the generally deficient rainfall.

(6) The development of the anti-cyclonic area in North-East Russia about the 20th seems to have notably influenced the pressure changes as far south as Kashgar, and probably to some extent also over the north of the Indian region. During this period of generally increasing pressure in the Northern Hemisphere, a similar steady increase seems also to have been maintained over the South-East Trade region and in the South Indian Ocean. Pressure rose steadily at Mauritius from the second week of the month, when it was in large defect, till the first week of July, when it was about normal. While the winds at the Seychelles were probably mainly conditioned by the pressure gradient over the Indian Ocean to the south, their irregularities from the 16th to the 23rd seem to have been mainly related to the movements of a local depression.

(7) On the 25th anti-cyclonic conditions spread over Europe from the north-west; they probably reached their maximum development about the 27th, and by the 29th had practically disappeared. It is to be noted that during the same time the pressure changes were generally upwards over the greater part of India, and very high pressures were recorded at this time in North-West India. On the 27th, pressure rose generally over the greater part of Europe and Asia, and as far south as Zanzibar and in Australia.

(8) On the 28th pressure fell briskly to very rapidly over the whole of North India, and in the mountain areas to the north and west, the action being apparently most marked at Gilgit.

At the end of the month, in consequence of the changes indicated in the preceding discussion, conditions were becoming more favourable for the advance of the monsoon currents to the Indian region, and by the 1st of July, monsoon conditions had begun to reappear on the West Coast of the Peninsula.

The general conclusions which the above discussion seems to suggest are :—

(1) That conditions in India may be sometimes largely conditioned by actions taking place in the Central Asian areas, and that occasionlly these actions extend over the greater part of Europe and Asia.

(2) That, in general, these actions do not extend south of the Equatorial belt, and are, for the most part, confined to the regions lying to the north of the belt of low pressure which in June lies over Arabia, Persia and North-West India.

(3) That these actions are largely modified by the barrier of the Himalayas, and seem to spread more readily southwards through the gaps in the range.

(4) That although the advance of the Trades currents northwards over the Indian Seas is to some extent conditioned by the pressure distribution in the regions to the north, the advance (as in June 1902) is probably more largely conditioned by the pressure gradient in the South of the Equatorial belt, the former exercising only a modifying influence, while the latter probably supplies the main part of the driving force.

(5) That, hence, a knowledge of the conditions obtaining in the South Indian Ocean is even more essential for the proper study of the Indian monsoon actions than a knowledge of conditions in India and over the land areas of Central and Southern Asia, although, as appears from the preceding discussion, both are necessary to a complete understanding of the phenomena.

A brief account of the conditions obtaining within India, during the month, will be found in the other sections of this Review, particularly in the sections on "Barometric depressions and cyclonic storms of the month" and "Rainfall."

JOHN MURRAY.

Atmospheric Pressure.

The mean 8 A.M. pressure of the Indian land area was '025" above the normal.

The local pressure anomalies were generally opposite in sign to those of May. This reversal in June of the local pressure conditions established in May takes place in at least three years out of four during the first permanent advance of the monsoon currents in June, and is largely, if not wholly, temporary.

Pressure was, relatively to the general condition, in defect to the east of a line joining Umballa, Agra, Benares, Raipur, Cocanada and Madras, and also locally in the West Punjab, Lower Sind, Malabar and Ceylon. The deficiency was greatest in the area characterised by the greatest excess of pressure in May, which included Bihar, North Bengal, Assam and Burma.

The following gives data for the stations in this area at which the deficiency was more than ·030″ in amount:—

STATION.	Variation from normal of mean 8 A.M. pressure of June 1902.	Pressure anomaly, June 1902.
	″	″
Rangoon	—·018	—·043
Sibsagar	—·010	—·035
Jalpaiguri	—·009	—·034
Minbu	—·009	—·034
Moulmein	—·008	—·033
Dhubri	—·008	—·033
Bhamo	—·007	—·032
Akyab	—·007	—·032
Yamethin	—·006	—·031

Pressure was, on the other hand, in local excess, or the barometric anomalies were positive in the South and Central Punjab, Upper Sind, Rajputana, Central India, nearly the whole of the Bombay Presidency, South and Central Madras, Hyderabad, the Central Provinces (except the eastern districts) and the southern districts of the United Provinces. The excess was small and of little importance, except in the areas represented by the following stations at which it ranged between ·020″ and ·041″:—

STATION.	Variation from normal of mean 8 A.M. pressure of June 1902.	Pressure anomaly, June 1902.
	″	″
Indore	+·066	+·041
Ahmednagar	+·064	+·039
Saugor	+·057?	+·032?
Khandwa	+·056	+·031
Ahmedabad	+·056	+·031
Bijapur	+·056	+·031
Amraoti	+·055	+·030
Akola	+·054	+·029
Sambhar	+·054	+·029
Raichur	+·054	+·029
Bellary	+·053	+·028
Hyderabad (Deccan)	+·052	+·027
Surat	+·052	+·027
Nellore	+·051	+·026
Rajkot	+·049	+·024
Hoshangabad	+·049	+·024
Seoni	+·048	+·023
Malegaon	+·047	+·022
Nagpur	+·046	+·021
Gulbarga	+·046	+·021
Chitaldroog	+·045	+·020

The variations of pressure at the level of the hill stations differed little from those at the neighbouring plains stations, and the vertical pressure anomalies were hence small and of little significance, as is shown by the following data:—

HILL STATION.	Variation from normal pressure, June 1902.	PLAIN STATION.	Variation from normal pressure, June 1902.	Vertical pressure anomaly (Hill—Plain).
	″		″	″
Quetta	+·009	Jacobabad	+·038	—·029
Murree	+·012	Peshawar	+·020	—·008
Leh	+·015	Lahore	+·033	—·018
Simla	+·015	Ludhiana	+·026	—·011
Chakrata	+·010	Roorkee	+·016	—·006
Ranikhet	+·011	Meerut	+·012	—·001
Darjeeling	—·022	Dhubri	—·008	—·014
Pachmarhi	+·058	Seoni	+·048	+·010
Mount Abu	+·045	Deesa	+·040	+·005
Wellington	+·029	Coimbatore	+·034	—·005

Pressure was practically normal in Persia and Arabia and at the Seychelles, in slight defect in East Africa (represented by Zanzibar) and at Mauritius, and ·095″ above the normal at Perth in West Australia. The excess in West Australia and the defect at Mauritius were hence much less pronounced than in May, an indication that the abnormal pressure conditions obtaining over the South Indian Ocean during May were gradually giving way.

The following gives a summary of the chief abnormal features of the pressure distribution:—

(1) Pressure was in excess in the Indian area by amounts averaging ·025″ on the mean of the month.

(2) Pressure was in relative defect over the whole of the region situated to the east of the meridian of 81° E., as well as locally in the West Punjab, Lower Sind, Malabar, West Ceylon and the north-western districts of the United Provinces. The deficiency was most marked in

Bihar, North Bengal, Assam and Burma, where it varied between ·023″ and ·043″ in amount.

(3) Pressure was in relative excess in the remainder of the country, including nearly the whole of the Bombay Presidency, Central India, Rajputana, the South and Central Punjab, Hyderabad, the western and central districts of the Central Provinces, South and Central Madras and the southern districts of the United Provinces. The excess was greatest in the Deccan, Gujarat, Berar, and the neighbouring districts of the Central Provinces and of Central India, in which areas it ranged from ·020″ at Chittagong to ·041″ at Indore.

(4) The vertical pressure anomalies were small and of little importance.

Barometric depressions and cyclonic storms of the month.

At the beginning of the month pressure was normal in Ceylon and Upper India, and in slight to moderate excess over the remainder of the country. Gradients were barely half their normal intensity over the Bay and the air movement in that area was in consequence much feebler than usual. Pressure was remarkably uniform in the west of the Peninsula and over the adjacent sea area where light and irregular airs and calms obtained.

The pressure changes were somewhat irregular during the next 24 hours but tended to diminish the barometric gradient or range of pressure over the Indian area without altering the general character of the distribution.

Pressure gave way steadily over Northern and Central India and the Deccan and was steady or increased slowly in Ceylon and Malabar from the 3rd to the 5th, and on the morning of the 6th was generally in slight excess in Western and Southern India and in defect over Upper India, Burma, Bengal and Assam by amounts varying from about ·05″ in Orissa to ·11″ in Lower Burma and ·14″ in the West Punjab.

The excess in Southern India, so far as can be ascertained from the available data, extended south-westwards over the south-east of the Arabian Sea and had an important influence on the advance of the monsoon current. The range of pressure over India had increased very considerably and was now a little over half an inch in amount. The following data show the large increase in the intensity of the barometric gradient over India during the period 2nd to the 6th :—

Date.	Highest pressure.	Lowest pressure.	Range.
	″	″	″
2nd June	29·843	29·553	·290
3rd ,,	·843	·501	·342
4th ,,	·859	·391	·468
5th ,,	·835	·398	·437
6th ,,	·856	·338	·518

It will thus be seen that the barometric gradients were on the 6th unusually steep over the Indian land area, a condition favourable for the advance of monsoon currents. *Pari passu* with the increasing intensity of the barometric gradients over India, winds strengthened in the west of the Equatorial belt and, advancing north-westwards along the African Coast, were established over the centre of the Arabian Sea on the 5th and the east of that area on the 6th. Moderate to heavy rain commenced on the Mid-West Coast on the 7th and, intensifying on the 8th and following days, extended slowly northwards and southwards along the West Coast.

The following table, giving the most noteworthy daily falls for the period 7th to 15th, shows the character of the burst of the monsoon on the West Coast :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ratnagiri	Devgad	7th	5·80
North Kanara	Ankola	,,	5·10
	Karwar	8th	4·36
	Kumta	9th	5·05
Malabar	Cannanore	,,	5·22
Ratnagiri	Malvan	,,	5·06
Savantvadi	Kudal	10th	5·48
Ratnagiri	Guhagar	11th	6·39
South Canara	Bantwal	,,	5·00
North Kanara	Kumta	12th	8·19
Ratnagiri	Dapoli	,,	7·58
Savantvadi	Savantvadi	13th	7·10
Malabar	Vayittiri	,,	6·27
North Kanara	Karwar	,,	6·77
	Bhalkal	14th	5·80
South Canara	Bandur	,,	5·36
North Kanara	Kumta	15th	6·90
Ratnagiri	Vengurla	,,	6·10

The distribution of the rainfall is shown more fully by the following statement giving the average daily rainfall in the Konkan and Malabar districts:—

Division.	District.	Average actual rainfall during 24 hours preceding 8 A.M. of								
		7th June.	8th June.	9th June.	10th June.	11th June.	12th June.	13th June.	14th June.	15th June.
		Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
Malabar	Malabar .	0·21	1·25	2·38	1·19	0·96	0·70	2	1·43	1·06
	South Canara	1·46	1·10	1·98	2·59	2·50	1·33	2·96	3·98	3·02
Konkan	North Kanara	1·30	1·18	1·92	2·70	1·56	2·41	4·14	2·95	3·13
	Savantvadi .	0·83	0·78	3·27	4·38	1·13	1·96	5·70	2·04	4·50
	Ratnagiri .	1·72	0·43	1·32	2·09	3·97	3·02	3·47	1·07	1·80
	Kolaba .	0·23	0·02	0·08	0·13	1·05	1·59	1·81	1·05	0·61
	Thana .	0·11	0·02	1·19	0·27	0·22	0·81	1·14	0·81	0·83

The preceding data are interesting as showing that the first burst of rainfall began on the Mid-West Coast and not in Malabar, as is usually the case. This is fully borne out by the marine information which establishes that the advance of the monsoon current took place from the west instead of from the south-west owing apparently to an excess of pressure obtaining over Malabar and the south-east of the Arabian Sea during this period.

Weather was squally in front of the advancing current and the winds exhibited a feeble tendency to the establishment of an irregularly cyclonic circulation off the North Konkan Coast.

The following gives 8 A.M. observations taken on board vessels in this area on the 6th:—

Name of Vessel.	8 A.M. position.		Barometer (Corrected).	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Dromonly* .	14 8	66 52	...	W	4	Rough sea. Cloudy and squally.
S.S. *Culna* .	15 51	73 30	29·715	SSE	2	Fine, 8 P.M. continuous heavy rain and wind squalls.
S.S. *Sirsa* .	15 52	73 29	·725	SE	2	Rainy.
S.S. *Gibraltar* .	16 28	73 19	·730	Var.	2	Fine, 4 A.M. heavy rain.
S.S. *Pasha* .	17 33	72 59	·745	SE	2	Moderate swell and fine.
S.S. *Caledonia* .	17 34	67 44	·668	W by S	1	Cloudy.

Pressure increased over the Indian area during the 7th and 8th, the change being larger in amount in the north than in the south. Hence the chief effect of these changes was to diminish the pressure range over India by ·15′. No significant change occurred during this period in the Arabian Sea, except that the tendency to the generation of a low pressure area in the front of the advancing monsoon current became somewhat less pronounced.

Pressure began to give way again on the 9th and the gradients for monsoon winds increased considerably. With the fall of pressure in India, the tendency to the establishment of low pressure conditions in the east of the Arabian Sea, which was noticed on the previous three days, became more marked and on the morning of the 10th a fairly well-defined depression was shewn lying over the angle between the Kathiawar and Konkan Coasts. This depression developed later into a storm of great intensity which during the next six days formed the most important feature of the weather in the Arabian Sea. The following is a history of this storm:—

Severe cyclonic storm of the 9th to the 16th June in the Arabian Sea.

9th June.—During the previous 24 hours pressure had given way over the whole of the Indian area except Ceylon and the extreme south of the Peninsula.

The quasi-permanent depression in North-Western India was somewhat deeper than usual and weather was feebly unsettled in Kashmir, the Punjab and the neighbouring districts of the United Provinces. The most important feature of the pressure conditions on this day was a moderate deficiency on the North Konkan Coast and the neighbouring sea area. Gradients were steeper than usual over the South Konkan Coast and moderately heavy rain had fallen in that area. Farther north, on the North Konkan Coast, pressure was rather uniform and abnormal south-east winds with light showers obtained. All the available marine information for the east of the Arabian Sea, which was extremely scanty, is given in the following table:—

Name of Vessel.	8 A.M. position.		Barometer (corrected).	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Itria* .	16 0	73 19	29·687	Var.	2	Squally with thick continuous rain.
S.S. *Egypt* .	17 39	67 0	·631	W	1	Slight W. swell and cloudy. 8 P.M. vivid lightning with heavy rain.
S.S. *Dwarka* .	18 54*	72 49	·635	SSE	2	Smooth sea, 4 A.M. light rain.
S.S. *Daghestan*	20 17	70 49	·595	E	1	Smooth sea, and cloudy.

* Noon position.

The wind observations recorded on board the *Daghestan*, *Egypt* and *Dwarka* show a distinct tendency to the establishment of cyclonic or rotatory motion.

10th June.—Pressure had again fallen over nearly the whole of India, the fall being greatest on the North Konkan Coast, where pressure was now about a sixth of an inch below the normal. Winds had shifted to north at Veraval and were blowing strongly from the south-south-east at Bombay.

The coast observations hence indicated the existence of a depression to the west of the North Bombay Coast. The observations were as follows:—

STATION.	PRESSURE.			WIND.				REMARKS.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	
	"	"	"				Inches	
Ratnagiri .	29·607	—·057	—·098	SSW	8	10	2·46	
Bombay .	·516	—·114	—·166	SSE	25	5	...	Sea rough.
Surat . .	·556	—·045	—·092	WS W(?)	10	6	...	
Bhavnagar Para.	·546	—·068	—1·162	S	12	7	...	Thunder storm.
Veraval .	·562	—·040	—·064	N	15	7	...	Sea smooth.
Dwarka .	·532	—·064	...	NW	14	5	...	Sea slight.
Bhuj . .	·514	—·070	—·075	WNW	15	0	...	

The S.S. *Hoseinee* was the only vessel in the depression area on this day. She experienced light variable airs and cloudy weather in Lat. 20°N. and 70°E., thus showing that the storm was still in its initial stage.

Winds had strengthened considerably over the centre and west of the Arabian Sea and weather was squally with much rain in that area.

11th June.—Pressure had given way briskly to rapidly in Kathiawar but was unchanged in the Konkan. Gradients were now very steep along the west coast between Mangalore and Bombay and heavy rain had fallen in that area. The wind observations recorded on the Kathiawar and North Konkan Coasts indicated the continued existence of the depression.

The following observations define the character and position of the depression at 8 A.M. of this day :—

STATION.	PRESSURE.			WINDS.				WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	
	"	"	"				Inches	
Bhuj . .	29·465	—·049	—·116	NW	13	4	...	
Dwarka .	·455	—·077	...	NNW	14	8	...	Sea slight.
Veraval .	·444	—·118	—·173	SE	9	9	...	Sea smooth.
Bhavnagar Para.	·505	—·041	—·152	SE	10	7	...	Thunder.
Surat . .	·505	—·051	—·138	S	10		...	
Bombay .	·507	—·009	—·173	SSE	30	10	1·33	Showery.
Ratnagiri .	·609	+·002	—·094	SSW	8	10	4·83	Sea very rough.

The marine data show that a strong monsoon (force 4 to 8) with a high sea obtained over the Arabian Sea, as far north as Lat. 17° N. The weather was very disturbed with "heavy cyclonic squalls" and continuous rain in the vicinity of the Konkan Coast. The mean strength of the current over the Arabian Sea had increased to 4·7, or 0·2 above the normal.

There were only two vessels in the area of depression on this day, *viz.*, the S.S. *Pachumba* and the *Pemba*. The former was proceeding from Bombay to Kurrachee and the latter from Busrah to Bombay.

The following gives all the information contained in their logs respecting the period noon of the 10th to the same hour of the 11th :—

HOUR.	NAME OF VESSEL.	POSITION.		Barometer. (corrected).	WIND.		WEATHER.
		Lat. N.	Long. E.		Direction.	Force.	
10th.		° ′	° ′	"			
Noon .	S.S. *Pachumba*	...	...	29·51	S by W	6	Passing squalls of wind and rain.
1 P.M. .	.....	...	...	·51	...	...	
2 „ .	.....	...	...	·49	...	...	
3 „ .	.....	...	...	·47	...	...	
4 „ .	.....	...	...	·45	SE by S	6	Rough sea, heavy southerly swell.
6 „ .	.....	...	...	·44	SE by E	5	Heavy S.S.W. swell.
8 „ .	.....	...	...	·44	SSW	...	
Midnight 11th.	.....	...	...	·44	S	2	Heavy swell.
2 A.M. .	.....	...	...	·43	SE by E	...	
4 „ .	.....	...	...	·43	NE	4	High cross swell.
6 „ .	.....	...	...	·44	NE	...	Occasional rain squalls.
8 „ .	.....	...	...	·44	NE by N	6	High sea.
Noon .	.....	21 08	69 24	·44	var.	2	Heavy westerly swell.
10th. 8 P.M. .	S.S. *Pemba* .	...	...	·42	SW	5	Slight sea.
Midnight 11th.	.....	...	...	·42	SW	4	Do. fine.
4 A.M. .	.....	...	...	·44	WSW	2	Slight beam swell.
8 „ .	.....	...	...	·44	WSW	2	Do.
9 „ .	.....	...	...	...	W	...	Vessel rolling slightly.
10 „ .	.....	...	...	...	NW	...	
11 „ .	.....	...	...	...	NNW	...	
Noon .	.....	21 49	68 26	·44	N	2	Fine; moderate S.W. swell; wind increasing slightly from N.

Both these vessels appear to have passed across the depression, though from opposite directions.

Their observations show clearly that the storm was as yet a diffused disturbance of slight intensity or a storm in the incipient stage.

Winds were strongest in the eastern half of the depression where they were of force 5 to 6.

The centre of the depression at 8 A.M. on this day was approximately in Lat. 19½°N. and Long. 70¼°E.

12th June.—Pressure had continued to decrease in Kathiawar and the Konkan and was now over a fifth of an inch below the normal at Veraval, Bhavnagar and Bombay. The land observations indicated that the depression in the north-east of the Arabian Sea had not changed much in position but had developed to some extent.

The following gives these observations:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches	
Bhuj	29·419	—·046	—·159	SE	12	2	...	
Dwarka	·384	—·071	...	ENE	14	9	...	Sea rising.
Veraval	·355	—·089	—·255	SE	20	9	0·26	Sea slight.
Bhavnagar Para.	·429	—·076	—·224	SE	13	9	0·01	Thunder.
Surat	·443	—·062	—·196	S	11	6	...	
Bombay	·458	—·049	—·220	SSW	26	10	4·25	Showery.
Ratnagiri	·526	—·083	—·174	S	13	10	2·61	Severe gale.

Skies were densely clouded in Gujarat and some local showers had fallen.

The following observations recorded on board vessels in the north-east and centre of the Arabian Sea at 8 A.M. on this day show the increasing intensity of the storm:—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer (corrected).	WIND. Direction.	WIND. Force.	WEATHER.
	° ′	° ′	"			
S.S. *Lowen Burg*	16 12	61 40	29·526	SW	7to8	Sea very high, overcast.
S.S. *Oriental*	16 32	61 43	·513	SW	6	High S. W. sea and cloudy.
S.S. *Arabia*	16 43	62 19	·510	SW by W	5	Confused very high sea; 4 P.M. light showers.
S.S. *Naderi*	17 08	65 32	·485	SW	6	High sea and overcast; 3-30P.M. heavy squalls with rain.
S.S. *Worsley Hall.*	17 30	67 57	...	WSW	8	Continuous rain; 8 P.M. heavy squalls.
S.S. *Pemba*	20 14	70 24	·301	SE	6	High sea; occasional heavy squalls of wind and rain.
S.S. *Deepdale*	21 21	67 35*	·315	NNE	4	Cross sea; threatening appearance of heavy weather.
S.S. *Pachumba*	23 31	67 23	·350	NNW	4	Heavy S.W. swell and cloudy.

* Noon position.

These observations when charted establish that a well defined cyclonic circulation now obtained in the north-east of the Arabian Sea, the centre of which was probably in Lat. 19¾°N. and Long. 69¾°E. or about 50 miles to the west-north-west of its position at 8 A.M. of the previous day. Judging from the barometric reading recorded on board the S.S. *Pemba* not more than 50 miles to the north-east of the centre, it is almost certain that the deficiency of pressure at the centre was about a third of an inch in amount and it was hence a storm of only moderate intensity at this stage.

This inference is confirmed by the fact that the winds were lighter in the central area than at distances of 200 to 600 miles to the south and south-west where south-west winds of force 5 to 8 were blowing.

13th June.—The only large changes were those due to the growth and advance of the storm. Pressure had diminished slightly to rapidly in Kathiawar and had increased briskly to rapidly in the Konkan.

The following gives 8 A.M. observations at the coast stations nearest to the centre at that hour:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches.	
Kurrachee	29·385	0	—·155	E	8	5	...	Dust haze
Bhuj	·393	—·026	—·177	SE	26	10	...	
Dwarka	·282	—·102	...	E	23	9	0·04	Sea very rough.
Veraval	·309	—·046	—·295	SE	17	10	0·47	Ditto.
Bhavnagar Para.	·482	+·053	—·167	SE	17	9	0·01	Thunder.
Surat	·507	+·064	—·129	SSE	14	8	0 16	
Bombay	·561	+·103	—·116	S	28	10	1·84	Showery.

These observations show that the storm had increased still further in intensity during the previous 24 hours and that it was central to the south-west of Veraval.

The character of the weather in the storm area is shown by the following extracts from the logs of the S.S. *Dumra* *Deepdale* and *Simla*.

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer (corrected.)	WIND. Direction.	WIND. Force.	WEATHER.
	° ′	° ′	"			
S.S. *Deepdale*	20 06	68 10	29·285	WNW	10	High sea; heavy rain squalls.
S.S. *Simla*	20 31	70 14*	·330	SW	10	Gusty.
S.S. *Dumra*	21 51	68 16*	·263	NE by E	6	Increasing sea and overcast; 4 P.M. continuous heavy rain squalls.

* Noon position.

So far as can be determined from these observations, the centre of the storm was in about Lat. 20¾°N. and Long. 68¾°E. The storm had hence advanced about 100 miles during the previous 24 hours. The cyclonic circulation was much more vigorous than hitherto, winds of force 9 to 10 being experienced at distances of 50 to 250 miles from the centre in the southern and eastern quadrants. A noteworthy feature of the air movement in the storm area was the feebleness of the winds in the western quadrant. Thus the S.S. *Ellora*, about 300 miles to the north-west of the centre, had variable airs, force 2.

14th June.—Pressure had increased over the whole of the West Coast, most rapidly at Veraval where the rise exceeded a seventh of an inch in amount. Pressure was now only about ·14″ in defect on the Sind and Kathiawar Coasts and the land observations hence appeared to indicate that the storm in the Arabian Sea was filling up.

The marine meteorological information regarding the storm was on this day even more limited than on previous days. The only vessel within the storm area on the morning of this day was the S.S. *Ellora*. She was proceeding to Bombay, and was in the western quadrant at 8 A.M. and not more than 75 miles from the centre.

It was blowing a strong breeze on board at midnight. Wind shifted gradually from north-north-east through north to north-by-west during the morning, and was blowing from north-west at noon, indicating that the centre passed to the east of her. The barometer fell ·37″ between 11 P.M. and 8 A.M., and was stationary during the next two hours, after which it began to rise. As, ordinarily, pressure falls about ·03″ between 11 P.M. and 4 A.M., and rises about ·04″ during the following 4 hours, the fall on board the *Ellora* was virtually about four-tenths of an inch. A comparison of the ship's barometer with that of the Bombay Observatory shows that the probable correction of her barometer was −·152″. The lowest corrected reading observed during the storm on this day was hence 28·858″ or 0·7″ lower than the normal.

The following gives the whole of the information contained in the log of the *Ellora*:—

Hour.	Name of vessel.	Position. Lat. N.	Position. Long. E.	Barometer (uncorrected).	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′	″			
13th, 11 P.M.	S.S. *Ellora*	...	...	29·38	NNE	4	
Midnight	,,	...	...	29·34	NNE	6	Frequent squalls.
14th, 4 A.M.	,,	...	...	·21	NNE	7	Heavy swell and high sea.
5 ,,	,,	...	...	·18	NW?	...	Rain throughout and moderate gale.
6 ,,	,,	...	...	·12	N	...	
7 ,,	,,	...	...	·06	N	10	
8 ,,	,,	22 16	66 20	·01	N by W	10	Heavy gale; high sea; constant squalls and heavy rain.
14th, 10 A.M.	S.S. *Ellora*	...	...	29·01	NNW	...	Gale increasing and high sea.
Noon	,,	22 01	66 38	·08	NW	11	Terrific squall accompanied with rain.
2 P.M.	,,	...	...	·11	NW	...	
4 ,,	,,	...	...	·12	W	10	Strong gale; heavy squalls and high sea.
6 ,,	,,	...	...	·17	SW	...	
8 ,,	,,	...	...	·17	SW	11	Heavy gale; high sea; hard rain squalls and fierce wind.
9 ,,	,,	...	...	·28	...	...	
10 ,,	,,	...	...	·36	...	...	
10-30 ,,	,,	...	...	...	...	...	Mail boat lost.
11 ,,	,,	...	...	·40	SW	...	
Midnight	,,	...	...	·39	SW	11	Heavy gale; frequent heavy squalls and high sea.

The combined sea and land information indicates that the storm was central in about Lat. 22° N. and Long. 67¼° E. at 8 A.M. The centre of the storm had hence moved about 150 miles in a north-west direction during the previous 24 hours. The fact that the *Ellora* was involved for about 12 hours in the inner storm area, and that the storm itself was travelling at the rate of about 6 miles an hour, shows that the inner storm area was not more than 100 miles in diameter (from north to south).

The whole of the available information for this day tends to establish that—

(1) the storm had concentrated rapidly during the past day;

(2) the depression at the centre was almost certainly more than 0·7″;

(3) the inner storm area was about 100 miles in diameter.

It is very probable that the storm was now a true cyclone with a calm central area, although no direct evidence of this is afforded by the observations.

15th June.—Pressure had increased in Kathiawar and Konkan and fallen on the Sind Coast. The fall was brisk at Kurrachee where pressure was now two-tenths of an inch below the normal. Violent winds prevailed at 8 A.M. on the Cutch and Kathiawar Coasts, their velocity at Dwarka being 50 miles an hour. A tremendous

sea was running on the Kathiawar Coast, skies were heavily clouded, and light rain had fallen in Gujarat and Lower Sind.

The following gives the 8 A.M. observations recorded at the coast stations:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M., reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
Kurrachee .	29·322	—·077	—·208	ENE	19	10	0·21	
Bhuj .	·470	+·048	—·098	S	?	10	0·33	
Dwarka .	·390	+·021	...	S	39	10	0·06	Sea tremendous.
Veraval .	·535	+·077	—·061	SE	20	9	0·11	Sea rough.

These observations indicated the existence of a storm to the south-west of the Sind Coast but afforded no indication of its extent or intensity.

The following gives 8 A.M. observations taken on board ships in the north of the Arabian Sea on this day:—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer (corrected).	WIND.		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	"			
S.S. *Ellora* .	20 46	68 05	29·359	SW	7	High sea; 4 A.M. occasional squalls.
S.S. *Kola* . .	21 50	69 05	·485	SSW	6	High sea, and overcast; 2 P.M. heavy rain squalls.
S.S. *Moshtari* .	22 39	64 09	·255	NW	5	High confused sea and light rain squalls; noon thick, rainy.
S.S. *Kilwa* .	24 49	61 59*	·336	Calm	0	High S.-E. swell and fine.

* Noon position.

None of these vessels was within the inner storm area and it is hence not possible to determine with certainty from their observations the position or character of the storm. The S.S. *City of Delhi*, however, proceeding from Bombay to Kurrachee, ran into the inner storm area on the evening of the previous day and was involved in it for nearly 48 hours. Her log, which is given below in full, shows the character of the weather experienced:—

DATE AND HOUR.	Name of vessel.	POSITION.		Barometer (uncorrected).	WIND.		WEATHER.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	"			
14th June, noon.	S.S. *City of Delhi.*	20 34	68 53	28·740	...	9	Strong gale and high confused sea.
4 P.M. .	"	...	...	·650	...	9	Strong gale and heavy squalls.
8 " .	"	...	...	·590	...	...	Wind increasing rapidly.
9 " .	"	...	...	...	...	12	Blowing a hurricane with terrific squalls.
Midnight	"	...	...	·350	SSE	12	Full hurricane raging.
15th June, 1 A.M. .	"	...	...	·350	SSE	12	Hurricane raging with increased violence, very high and confused sea.
4 P.M. .	"	...	...	·250	SSE	12	Ditto ditto.
8 " .	"	...	...	·160	SbyW	...	
Noon .	"	...	...	...	...	...	Wind and sea fearful; ship labouring heavily.
4 P.M. .	"	...	...	·150	...	...	Wind and sea increasing.
8 " .	"	...	...	·150	S	...	Weather getting worse, water becoming muddy.
Midnight	"	...	...	·120	SSW	...	Blowing with terrible force.
16th June, midnight to 2 A.M.	"	...	...	·060	...	12	Hurricane at its height, blowing fearfully strong, making it impossible to go about the decks. Barometer commended to rise.
4 A.M. .	"	...	...	·170	...	12	Ditto ditto.
8 A.M. .	"	...	...	...	...	...	Wind inclined to take off a little.
Noon .	"	...	...	...	SW	...	Sea became thick and muddy making it very evident that we were close to the land.

DATE AND HOUR.	Name of vessel.	POSITION. Lat. N.	POSITION. Long. E.	Barometer (uncorrected).	WIND. Direction.	WIND. Force.	WEATHER.
		° ′	° ′	″			
12-41 P.M.	S.S. *City of Delhi.*	...	...	...	...	...	Went full speed astern. Ship heading ENE.
5·45 „	„	...	...	...	...	...	Wind moderating and hauling southerly; put engines full speed ahead and steered W. by S.
8 P.M.	„	...	...	...	...	9	Weather improving but still blowing a strong gale.
Midnight	„	...	...	...	...	...	Wind and sea moderating Bar rising.
17th June, 4 A.M.	„	...	...	29·070	...	...	Wind and sea moderating.
8 „	„	...	...	·050	SW	...	Squally; sighted land which proved to be Ras Ormora (Lat. 25° N. and Long. 64½° E.).

The barometric observations recorded on board are, unfortunately, not very reliable. So far as can be determined from various comparisons, it is almost certain that the readings were from 0·5″ to 0·6″ too low. Applying this correction, her lowest reading recorded before 2 A.M. on the 16th was 28·56″ or about an inch below the normal. This reading is, it may be noted, three-tenths of an inch lower than that recorded on board the S.S. *Ellora*, and it is probably approximately correct.

The various land and ship observations suggest that the centre was most probably in Lat. 23° 50′ N. and Long. 66° 20′ E. at 8 A.M., or at a distance of about 150 miles to the north-north-west of its position at the corresponding hour of the 14th.

Winds were only fresh to strong at a distance of 100 to 170 miles to the north-east and south-west of the centre, indicating that the inner storm area was of even smaller extent than on the previous day. South-west winds, force 6 to 9, obtained in the centre of the Arabian Sea and along the Konkan and Kathiawar Coasts, while on the Mekran Coast towards which the storm was advancing there was little or no movement of the air.

The storm apparently recurved slowly to north during the day, and hence its rate of motion diminished considerably. Very stormy weather prevailed along the Sind Coast. The following information, contributed by the captain of the *S.S. Patrick Stewart*, at anchor at Kurrachee, shows the character of the meteorological changes in the eastern quadrant of the storm during the interval between 8 A.M. of the 15th and 7 A.M. of the 16th :—

HOUR.	Name of vessel.	POSITION. Lat. N.	POSITION. Long. E.	Barometer (corrected).	WIND. Direction.	WIND. Force.	WEATHER.
		° ′	° ′	″			
15th, 9 A.M.	S.S. *Patrick Stewart.*		...	29·287	E	6	Cloudy and misty.
10 „	„		...	·297	E	7	Overcast, with rain
11 „	„		...	·287	E	7	Do.
Noon	„		...	·257	ESE	7	Do.
1 P.M.	„		...	·237	ESE	7	Overcast.
2 „	„		...	·227	E by S	8	Do.
3 „	„		...	·217	E by S	8	Do.
4 „	„		...	·197	E by S	9	Do.
5 „	„		...	·197	E by S	9	Do.
6 „	„		...	·207	ESE	9	Do.
6-10 „	„	Kurrachee Harbour.	...	·147	...	...	Very heavy squall.
7 „	„		...	·157	ESE	10	Overcast.
8 „	„		...	·187	ESE	10	Overcast, with rain.
9 „	„		...	·177	ESE	10	Overcast.
10 „	„		...	·197	E by S	10	Do.
11 „	„		...	·167	E	10	Overcast, with rain.
Midnight 16th, 1 A.M.	„		...	·137	E	11	Do.
	„		...	·147	ESE	10	Do.
1·50 „	„		...	·107	...	...	Very heavy squall.
2 „	„		...	·087	SE	12	Overcast, with rain.
3 „	„		...	·047	SE	12	Do.
4 „	„		...	·037	SE	12	Do.
5 „	„		...	·057	SE	12	Do.
6 „	„		...	·057	SSE	12	Raining.
7 „	„		...	·067	S	12	Do.

These observations show that there was a fall of about ·16″ of pressure between 10 P.M. of the 15th and 4 A.M. of the 16th, or only ·13″ greater than the change due to the daily tide. The comparatively slow fall on board the *Patrick Stewart*, notwithstanding the fact that a perfect hurricane was blowing, (an indication that she was in the inner storm area,) was almost certainly due to the unusually slow movement of the storm—a result of its recurvature.

16th June.—Pressure had increased over the whole of North-Western India except locally on the Sind Coast where it had fallen rapidly. Pressure was now in moderate

excess on the Konkan and East Kathiawar Coasts, and ·35″ in defect at Kurrachee. The barometric gradients were hence exceedingly steep to the east of the storm centre and unusually strong winds prevailed on the Sind Coast. The velocity of the wind at Kurrachee at 8 A.M. was 62 miles per hour. West to south-west winds obtained in Rajputana and the interior of Kathiawar, an indication that the influence of the storm was not extensive. Seven inches of rain had been received at Kurrachee (reported by the Collector of Kurrachee) and moderate rain had fallen in Upper and Central Sind.

The following land and sea observations indicate the position and character of the storm at 8 A.M. :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	″	″	″				Inches	
Hyderabad (Sind).	29·431	+·007	−·050	SSE	28	8	0·84	Showery.
Kurrachee .	·175	−·147	−·352	SSE	15?	10	1·25	

Name of Vessel.	8 A.M. position.		Barometer (corrected).	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Moshtari* .	21 36	66 13	29·365	SSW	8	High confused sea; ship rolling heavily.
S.S. *Kilwa* . .	24 42	64 58*	·293	WSW	4	Moderate swell; 8 P.M. very heavy rain and terrific squalls.
S.S. *Patrick Stewart*	Kurrachee Harbour.		·087	SSE	12	Raining

* Noon position.

So far as can be judged from the barometric records of the S.S. *City of Delhi*, it is not improbable that pressure at the centre was less than 28·5″.

The observations when charted show that the centre of the storm was almost due west of Kurrachee in Lat. 25° N. and Long. 66½° E.

It had hence marched at a rate of about 4 miles an hour during the previous 24 hours.

An interesting feature of the air movement in the storm area was the contrast in the intensity of the winds in the eastern and western quadrants. Thus, while the *Patrick Stewart*, at anchor in Kurrachee harbour, experienced winds of hurricane violence, the *Kilwa*, less than 60 miles to the south-west of the centre, had only moderate winds (force 4). It is also evident from these facts that the storm was of small magnitude.

Very little information is available relating to the subsequent course of the storm. So far as can be ascertained it probably continued to progress slowly northwards and passed across the Mekran Coast about 30 miles to the west of Kurrachee between 2 and 4 P.M.

The following extracts from the logs of the *Patrick Stewart* and *Kola* support these inferences :—

Hour.	Name of vessel.	Position.		Barometer (corrected).	Wind.		Weather.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	″			
16th. 8 A.M.	S.S. *Patrick Stewart.*		...	29·087	SSE	12	Raining.
9 ,,	,,		...	·127	S by E	12	Do.
10 ,,	,,		...	·127	SSE	11	Overcast with rain.
11 ,,	,,		...	·187	SSE	12	Do.
Noon	,,		...	·177	SSE	12	Do.
1 P.M.	,,		...	·187	SSE	10	Do.
2 ,,	,,		...	·247	S	11	Raining.
3 ,,	,,		...	·267	S by E	10	Do.
4 ,,	,,		...	·277	S	8	Overcast, with rain.
5 ,,	,,		...	·277	S	6	Do.
6 ,,	,,		...	·307	S	6	Do.
7 ,,	,,		...	·337	S	6	Do.
8 ,,	,,		...	·347	SSE	5	Do.
9 ,,	,,		...	·357	S by W	4	Do.
10 ,,	,,		...	·377	SW by S	3	Do.
11 ,,	,,		...	·377	SSW	3	Do.
Midnight	,,	Kurrachee Harbour.	...	·387	SSW	4	Do.
15th Midnight.	S.S. *Kola* .	...	...	29·37	ESE		
16th 3 A.M.	,, .	..	...	·21	ESE		
4 ,,	,, .	...	...	·11	E	2	Moderate sea.
5 ,,	,, .	...	...	·02	E		Heavy squalls.
6 ,,	,, .	...	...	·02	NE		
7 ,,	,, .	...	...	·02	ENE	9	Hard squalls and high confused sea.
8 ,,	,, .	...	...	·00	ENE		Heavy showers.
9 ,,	,, .	...	...	28·99	ENE		
10 ,,	,, .	...	...	·96	NE		Hard squalls; high sea and heavy rain.
11 ,,	,, .	...	...	·94	NE		11·20 weather lulling.
Noon.	,, .	...	...	·91	ENE	2	High confused sea

Hour	Name of vessel.	Position. Lat. N.	Position. Long. E.	Barometer (corrected).	Wind. Direction.	Wind. Force	Weather.
1 P.M.	S.S. *Kola* .	...	...	28·90	N		Wind increasing and squalls of hurricane force.
2 ,,	,, .	Possibly 40 (?) west of chee.	about miles Kurra-	·89	N		
3 ,,	,, .	...	...	·88	N	9	Heavy rain squalls.
4 ,,	,, .	...	...	·87	W	9	Very high confused sea.
5 ,,	,, .	...	...	·86	WSW		
6 ,,	,, .	...	...	·90	SW		
7 ,,	,, .	...	...	·92	SW		Hard squalls.
8 ,,	,, .	...	...	·99	SW	9	Sea very confused and rising in solid masses and falling again (only the crests).
9 ,,	,, .	...	...	29·03	SW		
10 ,,	,, .	...	...	·07	S by SW		
11 ,,	,, .	...	...	·08	SW		
Midnight.	,, .	...	...	·11	SW	9	

The observations of the S.S. *Kola*, which was carried round the storm from the eastern through the northern quadrant by the weight of the wind, indicate, that she was apparently close to the edge of the calm centre on two occasions during the morning, *viz.*, about 4 A.M. and 11-20 A.M., thus confirming the inference drawn from other evidence that the storm was a true cyclone with a calm centre. It may be noted that the *Kola* was utterly helpless and at the mercy of the storm throughout the 16th.

After crossing the coast the storm passed into the hilly tracts of South Baluchistan and speedily broke up, so that there was practically no trace of its existence in the chart of the 17th.

The storm was accompanied by a storm wave which flooded Kurrachee and the low-lying lands in its vicinity, causing great destruction of property. A detailed account of the damage wrought by the storm will be found in the Appendix at the end of the Review.

Summary of the chief features of the storm.—The storm under discussion was one of the most severe that has occurred in the north-east of the Arabian Sea in the month of June in recent years. It was generated slowly off the Konkan Coast, in front of the first great advance of the monsoon current over the east of the Arabian Sea on the 8th, 9th and 10th. It developed steadily during the next three days, at the same time travelling slowly north-westwards, and on the 14th was a dangerous cyclone, with probably a calm centre and inner storm area of hurricane winds. It recurved slowly to north on the 15th and its rate of motion at the same time diminished from 6 to 4 miles an hour. The centre crossed the Mekran Coast about 30 miles to the west of Kurrachee on the afternoon of the 16th and passed into the broken ground of South Baluchistan, where it apparently broke up very rapidly. It was accompanied by a storm wave, which in conjunction with the violent winds caused great damage to life and property in Kurrachee and its neighbourhood. It may be noted that the tide on the morning of the 16th rose 7 feet higher than usual. The chain of the tidal gauge broke in the afternoon, thus showing that the height then attained was even higher than in the morning. The storm was remarkable for its slow movement, great intensity, and small extent.

The following gives the position and rate of advance of the centre from the 11th to the 16th :—

Date.	Approximate position of storm centre at 8 A.M. Lat N.		Long. E.		Distance travelled during interval.	Hourly rate of motion.
	°	′	°	′	Miles.	Miles.
11th . . .	19	30	70	15	.....	.....
12th . . .	19	45	69	40	50	2
13th . . .	20	40	68	45	100	4
14th . . .	22	0	67	15	150	6
15th . . .	23	50	66	20	150	6
16th . . .	25	0	66	30	90	4

Monsoon winds set in over the south of the Bay contemporaneously with the advance of the monsoon current over the Arabian Sea, but owing to the presence of abnormal pressure conditions, the most important of which was a moderate to considerable deficiency of pressure over Lower Burma and the Andaman Sea (relatively to the rest of Burma and the Bay), they were much more westerly than usual and were hence largely determined to South Tenasserim and Lower Siam. The pressure changes on the 10th displaced the area of maximum deficiency to the north of the Bay where winds were at this time exceedingly unsteady, and this change in the pressure conditions directed the flow of the monsoon current to the Arakan and Pegu coasts. The advance of the monsoon current through the region of unsteady winds in the north of the Bay gave rise to a small depression off the coast of Arakan during the 11th. The following information, collected from the logs of vessels navigating this part of the Bay, establishes the existence of this depression on the morning of the 12th :—

Name of vessel.	8 A.M. position. Lat. N.		Long. E.		Barometer (corrected).	Wind. Direction.	Wind. Force.	Weather.
	°	′			,,			
S.S. *Arratoon Apcar.*	13	30	94	0	29·701	SW	5	Sea rough and cloudy; 4 P.M. heavy rain squalls.
S.S. *Kistna* .	15	56	94	2	·602	SW	2	High S.-W. swell; 4 A.M. heavy rain squalls.
S.S. *Chanda* .	17	21	92	4	·500	NW	4	Moderate sea and cloudy; 4 P.M. heavy rain squalls.
S.S. *Maharaja* .	18	3	91	32	·478	N	6	Heavy rain; Noon squally.
S.S. *Kasara* .	20	12	92	18	·496	SE	5	Cloudy and heavy squalls.

These observations indicate that the winds although showing convergence towards a centre were by no means strong.

13th June.—Pressure had increased over the Bay except in the extreme north. The depression to the west of Arakan on the previous day had advanced rapidly in a north-westerly direction and was at 8 A.M. central about 100 miles to the south-east of Saugor Island, as is shown by the following marine data for that hour :—

Name of Vessel.	8 A. M. Position.		Barometer (corrected).	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S. S. *Hohenfels*.	18 33	85 50	29·523	SW	5	
S. S. *Kasara* .	20 0	92 34	·496	S	5	Heavy S. swell and heavy rain.
S. S. *Borneo* .	20 1	87 46	·452	WSW	4	Occasional squalls
S.S. *Maharani*.	20 3	89 17	·416	SW	4	S. W. swell and rainy.
S. S. *Maharaja*.	20 22	88 6	·437	NNW	5	Rainy.
F. L. V. *Torch* .	20 50	87 41	·467	SW	3	Overcast, with light rain at times.
F. L. V. *Planet*.	21 14	88 11	·445	N	2	Moderate N. W. squall at 9 P.M.

The strongest winds in the central area were only of force 4 to 5, indicating that it was a feeble disturbance. Outside the depression the winds ranged in force from 2 to 6 and on the mean of the whole area were only 0·4 above their normal strength. The centre of the depression was probably in about Lat. 20° 50′ N. and Long. 89¼° E.

The SS. *Maharani* which was only about 50 miles to the south of the centre in the morning and proceeding south-eastwards experienced south-west winds, force 4 to 6 and cloudy weather during the day. Captain Beahan describes the weather on board the *F. L. V. Torch* as follows:—

"A heavy south swell, sky overcast, with light rain at times during the day."

On board the F. L. V. *Planet* there was a "drizzle in feeble squalls from north at 1-30 P.M. and a moderate north-west squall passed at 9 P.M."

These remarks suffice to show that no important change in the weather occurred over the head of the Bay during the day.

14th June.—The feeble storm had passed into East Bengal during the previous 24 hours.

The following observations show its character and position at 8 A. M. :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 P. M., reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A. M.	Average hourly velocity in miles during past 24 hours.			
	″	″	″				Inches.	
Bogra .	29·411	—·102	—·164	W	4	10	0·28	
Jessore .	·415	—·046	—·147	NW	1	10	0·04	
Barisal .	·412	—·035	—·175	SSW	2	10	3·26	Continuous rain.
Chittagong	·476	+·015	—·151	SE	15	10	5·08	Continuous rain.
Mymensingh	·401	—·105	—·212	Calm	2	10	1·02	Showery.
Silchar .	·486	—·017	—·149	Calm	2	10	1.35	
Narayanganj	.388	—·095	—·194	NNW	6	10	3·40	

The centre was a little to the east or east-north-east of Narayanganj at 8 A. M.

Pressure was very uniform in the surrounding region and winds were light over the whole of Bengal. Moderate to heavy rain had fallen in East Bengal.

15th June.—Pressure had increased over East and North Bengal and Assam and the storm near Narayanganj on the previous day had filled up and disappeared. Moderately heavy rain had again been received in East Bengal and Assam and the rainfall had extended along the base of the hills as far west as Gorakhpur.

The storm under review formed under the usual conditions in front of the first advance of monsoon winds, but was throughout its existence a shallow diffused disturbance of no great importance. It marched along a north-westerly track from its place of origin off the Arakan coast to the head of the Bay, where it recurved rapidly to north-east and passed into East Bengal—an unusual course for storms to follow in the month of June.

The burst of the monsoon over the Bay was not so vigorous as usual and the failure of the disturbance to develop into a well-formed storm may have been to a large extent due to this cause.

On the 16th, the pressure distribution was abnormal over the Indian land area, pressure being in moderate excess in the Peninsula and in moderate to large defect in a broad belt of country extending from the West Punjab south-eastwards to Arakan and Assam. The trough of low pressure hence lay much nearer the base of the Himalayas than usual and dry westerly winds prevailed over the interior.

The monsoon current was below normal strength in the Arabian Sea and the only rainfall in the Peninsula received during the previous 24 hours was a few local showers in the coast districts of the Konkan. The Bay current was of normal strength and was determined chiefly to Bengal and Assam where moderately heavy rain was being received. The dissipation of the Arabian Sea storm on the 17th was followed by an advance of humid winds across the Kathiawar Coast which gave numerous showers to

Rajputana on the 19th and 20th and general rain in the Punjab and the neighbouring district of the United Provinces from the 20th to the 22nd. The chief feature of the weather during the period was a small depression which formed rapidly in the Delhi and Meerut districts during the night of the 19th and filled up equally rapidly during the 24 hours succeeding 8 A.M. of the 20th. Pressure had increased generally in the Indian area between the 18th and 20th and on the morning of the 22nd was more or less in excess over the whole of the country, with the exception of Upper Assam and North Bengal, where it remained in very slight defect. The excess was more than a tenth of an inch over nearly the whole of the area lying to the west of the meridian of 80° E. and was absolutely greatest at Veraval, where it slightly exceeded a fifth of an inch The current over the Bay was of normal strength, but was by the abnormal pressure conditions determined to Burma and Assam. The Bombay current was considerably weaker than usual and a general break in the rains obtained over the area usually dependent upon it for its monsoon rainfall.

A fall of pressure occurred over the Indian region on the 23rd and 24th which was on the whole greatest in North-Western India. Unusually steep gradients obtained on the Kathiawar coast on these two days and determined a rush of winds from the Arabian Sea into Upper India. The interaction of these moist sea winds with the dry northerly winds obtaining at this time in the Punjab resulted in a series of local storms which gave fairly general rain—heaviest in the plains districts. The rainfall from the Bay current was confined to Assam and the coast districts of Burma and was moderately heavy in amount. Beyond some thundershowers in the Malabar and Konkan coast districts there was no rain in the area dominated by the Bombay current. The fall of pressure on the previous two days was succeeded by a recovery on the 25th and 26th, the chief effect of which was to give a large excess of pressure over the whole of the northern half of the Indian monsoon area. In India the excess was most pronounced in Sind (·26″) and least in Malabar and Ceylon where it was practically *nil*. It is noteworthy that a similar large upward movement of the barometer occurred during this period over the region covered by the English charts. This synchronism of phase in the oscillation over the Indian monsoon area and over Europe is an indication that the change was due to general and not to local actions. Moreover the excess was nearly as large at the hill stations in Northern and Central India as on the neighbouring plains, showing that the actions giving rise to it extended vertically through a depth of at least 15,000 feet of atmosphere. The negative phase* of the oscillation commenced on the 27th and continuing during the remainder of the month brought about a large modification of the pressure conditions so that at the close of the month the only abnormal features were a slight to moderate deficiency in Southern India and Ceylon and a moderate excess over the central parts of the country, a type of distribution favourable for an advance of monsoon winds over the Indian seas. An increase in the strength of the air movement accompanied these large pressure changes on the 29th and 30th and on the latter day moderate to heavy rain was falling in Assam and North Bengal, while showers were increasing in Malabar and extending into the interior.

The most remarkable feature of the meteorology of the month was the sudden and complete withdrawal of the monsoon current from the east and centre of the Arabian Sea on the 16th and 17th. The causes of this withdrawal are obscure and can at present in the absence of information from the Indian Ocean be only conjectured. The available marine data do not show any abnormal diversion of the currents to Africa or Arabia and it is almost certain that this temporary retreat of the Arabian Sea current was due partly at least to the inherent weakness of the south-east trades circulation during the last fortnight of the month.

The following statement giving the daily air movement at the Seychelles for the period 15th to the 30th shows the feebleness of the south-east trades in the western half of the Equatorial Belt:—

DATE.	Wind velocity per diem.	Variation from normal.
	Miles.	Miles.
15th June	269	− 9
16th ,,	51	−227
17th ,,	53	−225
18th ,,	75	−203
19th ,,	86	−192
20th ,,	300	+ 22
21st ,,	244	− 34
22nd ,,	84	−194
23rd ,,	203	− 75
24th ,,	203	− 75
25th ,,	332	+ 54
26th ,,	289	+ 11
27th ,,	298	+ 20
28th ,,	335	+ 57
29th ,,	210	− 68
30th ,,	240	− 38

The following table, giving the difference or range of pressure between the north and south of India on each day from the 15th to the 30th, shows that the variations in the strength of the trades current as determined by the data of the Seychelles (given above) were not directly

* It is interesting to note that pressure continued to rise in the countries to the north and west of India as well as in Europe on the 27th, thus showing that the downward movement of the barometer began in India and was thence transmitted westwards. It is also noteworthy that although pressure was falling on the 27th in the plains a slight rise was reported from the hill stations.

related to the pressure conditions in the land area of India, and were most probably determined by actions in the trades region itself:—

Date.	Pressure difference between north and south of India at 8 A.M. of date.	Date.	Pressure difference between north and south of India at 8 A.M. of date.
	"		"
15th June . .	·523	23rd June . .	·373
16th ,, . .	·478	24th ,, . .	·386
17th ,, . .	·430	25th ,, . .	·298
18th ,, . .	·421	26th ,, . .	·171
19th ,, . .	·376	27th ,, .	·177
20th ,, . .	·452	28th ,, . .	·259
21st ,, . .	·386	29th ,, . .	·337
22nd ,, . .	·332	30th ,, . .	·372

The absence of any direct connection between the intensity of the barometric gradient over India and the strength of the Trades current during this period is shown even more clearly by the following statement giving means for eight-day periods:—

Period.	Mean gradient.	Mean variation of velocity from normal.
	"	Miles.
15th to 22nd	·425	—133
23rd to 30th	·297	— 14

The following table giving pressure variations of 16 representative stations in the monsoon area for each alternate day from the 18th to the 30th shows the extreme unsteadiness and abnormal character of the pressure conditions accompanying the prolonged break in the rains during the period:—

STATION.	PRESSURE VARIATION FROM NORMAL.						
	18th June.	20th June.	22nd June.	24th. June.	26th June.	28th June.	30th June.
	"	"	"	"	"	"	"
Baghdad .	—·203	—·078	—·029	—·028	+·049	—·004	+·045
Bushire . .	—·094	+·047	+·100	+·064	+·084	+·083	+·113
Aden . .	—·011	+·072	+·100	+·089	+·039	+·085	+·093
Zanzibar .	—·036	—·050	—·009	—·014	—·109	—·004	—·004
Seychelles .	—·051	—·036	+·015	—·025	—·023	—·038	—·023
Colombo .	—·021	+·080	+·060	—·015	0	—·072	—·032
Rangoon .	+·072?	+·049?	+·045	—·095	+·039	+·025	—·002
Sibsagar .	—·032	+·029	—·035	—·109	+·107	+·003	+·011
Allahabad .	+·006	+·102	+·099	+·032	+·140	+·061	+·007
Nagpur . .	+·088	+·121	+·096	+·059	+·087	+·058	+·050
Bombay . .	+·116	+·146	+·189	+·090	+·104	+·076	+·034
Veraval . .	+·121	+·163	+·218	+·079	+·182	+·117	+·076
Jacobabad .	+·030	+·076	+·198	+·058	+·264	+·143	+·047
Lahore . .	+·057	+·069	+·140	+·044	+·213	+·091	+·009
Leh . .	—·038	—·071	—·044	—·063	+·133	+·073	+·070
Quetta . .	—·048	—·030	+·054	—·061	+·113	+·118	+·065

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

The following gives a brief summary of the snowfall reports for the month:—

I.—AFGHAN MOUNTAIN DISTRICTS.

KILLA DROSH.

Snow fell on the higher peaks of the neighbouring mountains on the 23rd and 24th of the month. The fall measured about 2 feet in depth on the Lowari Pass on these two days.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) KASHMIR.

Snow fell on the higher hills adjacent to Gulmarg on the 9th, 18th, 20th and 21st. The fall was moderate on the 20th and 21st and light on other occasions.

(2) LAHOUL.

Light snow fell on the higher ranges above 15,000 feet on five occasions during the month.

(3) CHAMBA.

Moderate falls of snow occurred on the Sach Pass (elevation 14,400 feet) on the 14th, 20th, 21st and 22nd. The snow line, however, did not descend lower than 11,000 feet.

(4) SIMLA HILLS.

Light snow fell on the 4th and 21st down to 12,000 feet on the higher hills near Kilba. There was a light to moderate fall of snow in the Pabar Valley above 11,000

feet on the night of the 22nd, an unusual occurrence for the time of year in that part of the district. The depth of snow at the end of the month on the Rupin, Burun, Shatul and Buldar Passes was estimated to be from 3 to 4 feet.

III.—UNITED PROVINCES HIMALAYAS.

(1) ALMORA.

About 7 feet of snow fell on the higher peaks of Malla Johar and 3 inches on those of Danpur. No snow is reported to have fallen in Byans, Chandas and Darma. The snowfall is believed to be greater in amount than in the corresponding period of the previous year.

(2) GARHWAL.

Snow fell on several occasions during the month on the higher ranges above 13,000 feet, but the Niti and Mana Passes remained open during the month.

Summary of special Storm Reports.

The following is a brief statement of the local storms of which reports have been received from observers:—

1st.—Duststorm at Hoshangabad at 3-10 P.M. It came from south-west and lasted about 10 minutes.

2nd.—Thunderstorm at Poona from 3-43 to 4-10 P.M.

3rd.—Thunderstorm at Belgaum. The greatest velocity of wind during the storm was 50 miles per hour.

4th.—Thunderstorm at Srinagar from 4 to 5 P.M.
Duststorm at Srinagar from 7 to 9 P.M.

5th.—Duststorm at Agra in the early morning. This consisted of a succession of three storms of which the third occurred at 4 A.M. and was accompanied with thunder and lightning. The unsettled conditions indicated by the occurrence of these storms, culminated in the evening in a hailstorm which lasted from 6-15 P.M. to 6-25 P.M. The stones measured about a quarter of an inch in diameter.
Duststorm at Mainpuri at 9-10 P.M.

6th.—Thunderstorm at Allahabad between 4 P.M. and 9 P.M.

7th.—Severe duststorm at Gulmarg from 3·30 P.M. to 8 P.M.
Duststorm at Hoshangabad at 1-40 P.M. It came from south-west and lasted about 20 minutes.
Duststorm at Khandwa from 3-32 P.M. to 4 P.M.
Thunderstorm at Poona from 3-20 to 3-32 P.M. One of the Jail walls was struck by lightning.

8th.—Severe thunderstorm at Gulmarg from 5 P.M. to 8 P.M. Hailstorm occurred in the neighbouring villages. The largest hailstones were about two tolas in weight and inflicted much damage on the standing crops.
Violent duststorm at Srinagar from 2-15 P.M. to 5 P.M. 18·2 miles of wind were recorded by the anemometer between 2-30 and 2-45 P.M.

9th.—Thunderstorm at Gulmarg from 2 P.M. to 6 P.M. Hail fell in some of the neighbouring villages and inflicted much injury on the cotton crop.
Thunderstorm at Srinagar lasting from 4 to 6 P.M. Some trees were uprooted. Two small boats are said to have capsized in the river.
Thunderstorm at Khandwa at 2 A.M. A duststorm passed over the station at 9 P.M.
Duststorm at Lahore from 7 to 8 P.M.
Thunderstorm at Simla from 7-15 to 7-55 A.M.

10th.—Violent duststorm at Allahabad from 2-50 P.M. to 3-10 P.M.
Duststorm at Hoshangabad at 6-10 P.M.
Thunderstorm at Khandwa at 9 P.M.

11th.—Thunderstorm with hail at Gulmarg from 4 to 4-30 P.M.
Severe duststorm at Deesa from 3-45 P.M. to 4-45 P.M.
Thunderstorm at Simla from 2-20 P.M. to 3-30 P.M. Hail fell for a short time during the storm. Temperature decreased from 72° at 2 P.M. to 53° at 3 P.M.

12th.—Violent duststorm at Kurnool at 3-30 P.M. It came from north-west and lasted about 40 minutes.
Thunderstorm at Simla from west between 4 and 5 A.M.

14th.—Duststorm at Allahabad from 2 P.M. to 3-50 P.M. The amount of wind registered by the observatory anemometer during the interval of 25 minutes was 22·1 miles.
Duststorm at Jodhpur at 6-36 P.M. 7·9 miles of wind were rocorded in seven minutes.
Duststorm at Lahore from 6-20 P.M. to 10 P.M.

15th.—Duststorm at Srinagar from 5 to 7 P.M.
Duststorm at Hoshangabad at 6-2 P.M.
Duststorm at Khandwa at 3-40 P.M.
Thunderstorm at Simla from 6-35 P.M. to 8-30 P.M.

16th.—Thunderstorm at Simla between 11 P.M. and 1 A.M. (17th).
Thunderstorm at Gulmarg from 2 to 7 P.M.

18th.—Duststorm at Ajmere at 1-15 P.M.
Duststorm at Jodhpur at 9-57 A.M. 32·3 miles of wind were recorded between 10-25 and 11-10 A.M.

19th.—Severe duststorm at Jodhpur at 8-37 A.M. Wind blew at the rate of 84 miles an hour during the storm.
Duststorm at Saugor from 5-15 P.M. to 5-45 P.M.

Violent duststorm with thunder at Srinagar from 7 to 8-30 P.M.

Duststorm with thunder at Lahore at 11-4 P.M.

20th.—Thunderstorm at Lahore at 8-40 P.M. Pressure was very unsteady during the storm. It increased from 29·028″ at 8-40 to 29·100″ at 9-10 P.M. and fell ·070″ between 10 and 10-30 P.M. when the storm was passing away.

23rd.—Duststorm at Lahore at 10-22 P.M. The barometer rose from 28·952″ at 10 P.M. to 29·020″ at 10-50 P.M.

24th.—Duststorm at Allahabad at 7-35 P.M.

25th.—Violent duststorm at Jacobabad at 7-37 P.M. It came from north-north-west and lasted about 20 minutes.

Duststorm at Jodhpur at 9-52 A.M

Duststorm at Khandwa at 3-50 P.M.

Duststorm at Ludhiana from 6-22 P.M. to 7-30 P.M.

Thunderstorm at Simla from 2-15 P.M. to 3-30 P.M.

28th.—Duststorm at Hoshangabad at 6-20 P.M.

Duststorm at Khandwa at 5 P.M.

29th.—Thunderstorm at Gulmarg. It came from north and lasted from 5 to 8 P.M.

Duststorm with thunder at Srinagar. It came from north and continued from 5 to 7 P.M.

30th.—Thunderstorm at Khandwa at 2-45 P.M.

Thunderstorm at Simla from 2-35 to 4-30 P.M.

Thunderstorm at Srinagar from 5-13 to 8 P.M.

Thunderstorm at Gulmarg at 6 P.M.

The following hailstorms are reported by non-departmental authorities:—

5th.—The following account of a hailstorm at Aligarh on this day is extracted from the *Pioneer* newspaper of the 8th June:—

> "A violent storm of wind, accompanied with thunder, lightning, rain, and hail took place at about 8 P.M. In a few minutes all the roads were blocked with fallen trees and broken branches. The storm lasted for about three quarters of an hour. One or two deaths from falling trees are reported. Many buildings in the city and neighbourhood were unroofed and otherwise damaged, among them being the buildings of Messrs. Wests' Cotton Press. Trees are strewing the ground on every side and the mango crop is almost totally ruined The temperature has fallen about 10 degrees."

24th.—Hailstorm in 16 Dehs (villages) of the Western Nara District at 10 P.M. The hailstones varied in weight from ½ to 10 tolas. The storm came from north-west and caused a good deal of damage to fences along bunds and to roofs of buildings along canals and bunds.

The following reports of earthquakes during the month have been received:—

9th.—Earthquake at Chitral.

16th.—A correspondent from Dehra Dun writes to the *Pioneer* as follows:—

> "A very perceptible shock of earthquake was felt here at 7-2 A.M. (Madras time) this morning. The Basevi Memorial clock in the Great Trigonometrical Survey Office stopped in consequence of the shock."

This tremor apparently travelled from west to east and was felt simultaneously at Simla, Naini Tal and Muktesar.

18th.—Earthquake at Jodhpur at 7-49 P.M. The shock lasted about 26 seconds.

Brief Summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—At the opening of the month an advance of humid monsoon winds was in progress in the extreme south-west of the Arabian Sea. These winds continued to march north-eastwards during the succeeding five days and by the morning of the 7th were established over the whole of the centre and east of the Arabian Sea. There was, as is frequently the case, a marked tendency to the formation of a depression in front of the advancing current on the 8th and 9th. It developed during the next two days and on the morning of the 12th a storm of moderate intensity was shown lying to the west of Kathiawar. It marched slowly north-north-westwards parallel to the coast, at the same time intensifying considerably, and was a dangerous cyclone on the 15th and 16th. It struck the coast about 30 miles to the west of Kurrachee on the afternoon of the 16th as a storm of great intensity. Its subsequent course is uncertain. Very stormy weather was experienced over the north-east of the Arabian Sea from the 12th to the 16th, the S.S. *Patrick Stewart* at anchor at Kurrachee and the *City of Delhi* experiencing winds of hurricane violence. The storm drove an enormous tidal wave over Kurrachee and the neighbouring low-lying lands which caused great destruction of property.

The air movement over the Arabian Sea was 20 to 40 per cent. below its normal strength during the first nine days of the month but increased rapidly on the next two days and was 20 to 30 per cent. above its normal intensity from the 12th to the 14th. This increase was not, however, maintained, the winds falling off rapidly during the 14th and averaging 4·4 on the 15th and 3·7 on the 16th. During the remainder of the month winds ranged between 2·9 and 4·1 in average strength and were hence lighter than usual. The feebleness was most marked in the eastern half of the sea, where on most days the wind strength varied between 2 and 4. The winds were also unsteady in direction. The lie of the isobars in the east

of the Arabian Sea during this period of weakness of the winds indicated the existence of high pressures over that area.

On the mean of the month the current in the Arabian Sea was nearly 20 per cent. below the normal strength.

Bay of Bengal.—Fine weather with light to moderate winds from between west and south obtained over the Bay during the first three days of the month. Winds began to increase on the 4th and were 0·6 above their normal strength on the 5th. The character of the air movement at this time in the extreme south indicated that an advance of humid monsoon winds was in progress. These winds advanced up the Bay at the rate of about 250 miles per diem during the next 72 hours, and by the morning of the 8th had extended as far north as Lat. 16° N. The current was, however, determined largely to Tenasserim, in consequence of the prevalence of abnormal pressure conditions in that area at the time. The passing away of these abnormal conditions on the 11th directed the flow of the current to Arakan, and during the day a slight depression formed to the west of that coast between Diamond Island and Akyab. It, however, failed to develop into a storm. Marching by a curved path it passed inland across the Bengal Coast on the evening of the 13th as a slightly marked low pressure area. With its passage inland, moderate to strong monsoon winds, were established over the whole of the Bay and held until the 25th, after which the current diminished rapidly in strength, and during the next four days was more or less below its normal intensity. This falling off was however only temporary, for a rapid increase occurred during the 29th, and at the end of the month the current was 1·1 stronger than the normal. During the greater part of the second half of the month winds were more westerly than usual over the north and centre of the Bay, indicating an unusually strong set of the current to Burma and Assam.

Unlike the current in the Arabian Sea, which was weaker than usual, the Bay branch of the monsoon current was of normal intensity on the mean of the whole month.

Equatorial Belt.—The information available for this region is unusually scanty. It, however, suffices to show that the south-east trades were neither so steady nor so strong as usual during the greater part of the month. The feebleness was on the whole most marked during the period from the 15th to the 25th or 26th. The data also indicate that during the first five days of the month when an advance of south-west winds was taking place over the centre and east of the Arabian Sea light unsteady winds, chiefly from northerly directions, obtained over the region to the west and south-west of the Maldives, an indication of the existence of abnormal pressure conditions over the middle portion of the Equatorial belt and the south-east of the Arabian Sea. Towards the end of month there was rapid increase in the strength of the trades circulation over the west of the belt.

From the preceding summary of the weather in the Indian Seas it will be seen that the meteorology of the month in these areas was characterized by several abnormal features of which the following were the most noteworthy:—

(1) The monsoon current set in about its normal date over both the Arabian Sea and the Bay of Bengal. The advance in the former area took place from the west instead of from the normal south-west direction and the rains hence began earlier on the Konkan, than on the Malabar Coast.

(2) The disturbed conditions in front of the advancing current in the Arabian Sea developed into a severe cyclone, which caused very stormy weather off the Kathiawar and Sind Coasts from the 12th to the 16th. The advance in the Bay was feebler than usual and the storm generated in that area was a shallow diffused disturbance of slight importance.

(3) A rather rapid decrease of the air movement over the Arabian Sea during the second half of the month, most marked in the eastern half of that area.

(4) The conditions obtaining in the east, differed from those in the west, of the Arabian Sea, during the second fortnight of the month, light unsteady winds holding in the former, and moderate south-west winds in the latter region.

(5) The Bay current blew more directly from the west than usual over the centre and east of that area, thus indicating a stronger determination than usual to Burma, during the greater part of the month.

Temperature of the air.

The variations from normal of the temperature conditions of the month were mainly determined by the rainfall distribution of the period, temperature being in defect in the area of increased rainfall, comprising Assam, East Bengal, the Punjab, Baluchistan, West Rajputana and Sind, and in excess in the region of deficient rainfall, including nearly the whole of the Peninsula, the Gangetic Plain, West Bengal, the Central Provinces, Central India and Burma.

The mean maximum or day temperature of the month was below the normal in Sind, the Punjab, West Rajputana, the upper districts of the United Provinces, Assam, East and North Bengal, and locally at one or two stations on the Madras and Konkan coasts. The variations were

small in amount except at the stations for which data are given below:—

STATION.	MEAN MAXIMUM TEMPERATURE. Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	°	°	°
Hyderabad (Sind)	99·5	104·2	−4·7
Montgomery	105·3	110·0	−4·7
Roorkee	97·1	100·4	−3·3
Ludhiana	101·6	104·8	−3·2
Sibsagar	86·3	89·3	−3·0
Delhi	100·5	103·2	−2·7
Sirsa	104·2	106·7	−2·5
Lahore	105·0	107·4	−2·4
Khushab	104·8	107·1	−2·3
Umballa	99·2	101·4	−2·2

The mean day temperature was above the normal over the remainder of the Indian area. The excess was more than 2° in a large belt of country stretching from Rajputana, Gujarat and the Konkan eastwards to West Bengal, Orissa and Ganjam, and was 4° or upwards at the stations for which data are given below:—

STATION.	MEAN MAXIMUM TEMPERATURE. Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	°	°	°
Sambalpur	106·6	97·3	+9·3
Raipur	105·3	97·2	+8·1
Chanda	105·7	98·5	+7·2
Nagpur	105·5	98·3	+7·2
Seoni	101·2	94·2	+7·0
Jubbulpore	103·9	96·9	+7·0
Hoshangabad	104·9	98·1	+6·8
Cocanada	101·8	95·2	+6·6
Ranchi	97·5	91·1	+6·4
Akola	104·5	98·2	+6·3
Sutna	105·0	98·7	+6·3
Amraoti	103·4	97·2	+6·2
Khandwa	102·7	97·6	+5·1
Malegaon	99·8	94·9	+4·9
Benares	105·0	100·1	+4·9
Indore	99·2	94·4	+4·8
Secunderabad	99·1	94·3	+4·8
Hazaribagh	97·2	92·5	+4·7
Bahraich	102·0	97·4	+4·6
Nowgong	105·9	101·6	+4·3
Masulipatam	102·0	97·7	+4·3
Ahmednagar	94·6	90·4	+4·2
Cuttack	99·7	95·5	+4·2

The area of greatest excess of day temperature hence included the Central Provinces and Baghelkhand.

The highest maximum temperatures of the month and also of the year were recorded in the first week of the month in Upper India. In years of normal conditions, the hot weather usually terminates in the fourth week of May but in the present year owing to the delay in the establishment of the monsoon it was protracted beyond its normal period and the highest temperatures of the year were registered about a week later than usual.

The following gives the maximum temperatures of the month recorded at the hottest stations:—

STATION.	Highest maximum temperature recorded in June 1902.	Date on which recorded.	Highest maximum temperature recorded in June previous to 1902.	Year in which recorded.
Jacobabad	125·0	5th	126·0	1897
D. I. Khan	119·7	5th	121·5	1882
Mooltan	119·0	5th	121·0	1897
Khushab	118·9	4th	120·4	1896 & 1897
Peshawar	117·5	7th	119·0	1880
Lahore	117·4	4th	119·5	1880

These temperatures were hence from 1° to 2° lower than the highest previously recorded. The absolute maximum of the year was 125° registered at Jacobabad.

The variations of the mean minimum or night temperature were generally similar in character to those of the mean day temperature but smaller in amount.

The mean minimum or night temperature was above the normal over the whole of the country with the exception of Upper Burma, Arakan, Assam, Bengal, Sind, West Rajputana, Cutch, the southern half of the Punjab, the

Bombay and Madras Deccan and Orissa. The variations were small except in the Central Provinces, Berar, Chota Nagpur and the east of Central India, where the night temperature was moderately to considerably above the normal.

The following gives data for this area:—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	°	°	°
Raipur	83·1	78·4	+4·7
Sutna	85·7	81·1	+4·6
Sambalpur	85·0	80·7	+4·3
Nagpur	82·7	78·5	+4·2
Hoshangabad	83·1	79·0	+4·1
Amraoti	80·5	76·8	+3·7
Jubbulpore	82·1	78·4	+3·7
Saugor	81·1	77·6	+3·5
Akola	81·1	77·7	+3·4
Nowgong	85·6	82·4	+3·2
Ranchi	77·7	74·6	+3·1
Chanda	82·6	79·6	+3·0
Cocanada	84·0	81·0	+3·0
Jhansi	86·9	84·0	+2·9
Khandwa	81·4	78·7	+2·7
Hazaribagh	78·4	75·8	+2·6
Seoni	77·9	75·5	+2·4
Gaya	82·5	80·2	+2·3
Hyderabad (Sind)	76·6	74·4	+2·2

The region of largest excess of night temperature hence approximately coincided with that of greatest excess of day temperature.

The mean temperature of the month was below the normal in two areas, *viz.*:—

(1) Assam and North-East Bengal.

(2) Sind, Cutch, West Rajputana, nearly the whole of the Punjab and the north-western districts of the United Provinces.

The variations in these areas were less than 2° in amount at all stations except Montgomery (—3·4°), Hyderabad (—3·0°) and Umballa (—2·2°).

The mean temperature was more or less in excess of the normal over the rest of the country. The excess was more than 2° in amount at the following stations:—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	°	°	°
Sambalpur	95·8	89·0	+6·8
Raipur	94·2	87·8	+6·4
Nagpur	94·1	88·4	+5·7
Hoshangabad	94·0	88·5	+5·5
Sutna	95·3	89·8	+5·5
Jubbulpur	93·0	87·6	+5·4
Chanda	94·1	89·0	+5·1
Amraoti	91·9	86·4	+5·0
Akola	92·8	87·9	+4·9
Ranchi	87·6	82·8	+4·8
Cocanada	92·9	88·1	+4·8
Seoni	89·6	84·9	+4·7
Khandwa	92·1	88·2	+3·9
Saugor	91·5	87·7	+3·8
Nowgong	95·8	92·0	+3·8
Hazaribagh	87·8	84·1	+3·7
Indore	88·2	84·9	+3·3
Benares	94·2	91·0	+3·2
Jhansi	96·5	93·4	+3·1
Secunderabad	87·5	84·4	+3·1
Masulipatam	91·9	88·9	+3·0
Malegaon	88·0	85·0	+3·0
Ahmedabad	93·0	90·1	+2·9
Allahabad	95·0	92·1	+2·9
Cawnpore	94·2	91·6	+2·6
Gaya	92·5	89·9	+2·6
Hyderabad (Deccan)	87·0	84·4	+2·6
Lucknow	93·4	90·9	+2·5
Neemuch	90·1	87·8	+2·3
Gorakhpur	90·5	88·2	+2·3
Mainpuri	93·5	91·3	+2·2
Chaibassa	89·7	87·5	+2·2

Temperature was below the normal in the West Himalayan region and in excess at Pachmarhi and Mount Abu. The variations were thus similar in character to those of the neighbouring plains, an indication that the actions giving rise to these variations were not confined to the lower atmospheric strata.

The following gives data for five representative stations:—

Hill station.	Mean daily temperature.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	°	°	°
Murree	68·9	73·1	—4·2
Leh	55·1	58·9	—3·8
Gilgit	80·5	83·3	—2·8
Simla	66·1	67·8	—1·7
Pachmarhi	84·4	79·0	+5·4

The low temperature conditions in North-Western India did not extend westwards into Baluchistan, Afghanistan and Persia, where temperature was on the average of the month above the normal.

The following data illustrate this feature:—

Station.	Mean daily temperature.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	°	°	°
Baghdad	92·2	88·6	+3·6
Teheran	86·0	80·8	+5·2
Kabul	74·3	74·0	+0·3
Quetta	76·3	74·9	+1·4

The mean temperature of the month hence differed more or less considerably from the normal over a large part of the country. The principal features were:—

(1) Slight deficiency in Assam and North Bengal nearly the whole of the Punjab, Sind, West Rajputana, the north-western districts of the United Provinces and the Upper India hill districts, somewhat more strongly marked in the day than in the night temperature.

(2) Slight excess in Burma, West Bengal, East Rajputana and the west and south of the Peninsula. The excess was on the whole more pronounced in the day than the night temperature, more especially in the last named area.

(3) Moderate to large excess in the Central Provinces, Berar, Chota Nagpur, the eastern half of the United Provinces, Central India, Gujarat, Hyderabad and the Circars, where both day and night temperature were above the normal, the former, however, to a somewhat greater extent than the latter. The excess was most pronounced at Sambalpur (+6°·8) and Raipur (+6°·4) which hence formed the focus of this region of excessive temperature during the month.

(4) Slight to considerable excess in Baluchistan, Afghanistan and Persia, most marked at Teheran (+5°·2) and Baghdad (+3°·6).

The following table gives comparative data of the mean temperature conditions of the month in 56 meteorological divisions of India:—

Province.	Division.	Actual Temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	85·9	75·8	80·9	10·1	18·2	+0·6	+0·7	−0·1
	Lower Burma (Deltaic)	86·4	77·3	81·9	9·1	17·6	+0·3	+0·9	−0·6
	Central do.	90·5	76·4	83·5	14·2	26·0	+1·3	+1·4	−0·1
	Upper do.	93·2	76·6	84·9	16·7	26·8	+1·2	0	+1·2
	Arakan	86·5	77·9	82·2	8·6	16·7	+0·5	—0·2	+0·7
Bengal and Assam.	Eastern Bengal	88·0	77·0	82·5	10·9	21·4	0	−0·5	+0·5
	Assam (Surma)	88·7	75·6	82·2	13·1	26·3	−0·7	−0·6	−0·1
	Do. Hills	73·2	64·0	68·6	9·3	18·7	...	...	...
	Do. (Brahmaputra)	85·7	74·9	80·3	10·8	21·4	−2·0	−1·0	−1·0
	Deltaic Bengal	92·3	78·9	85·6	13·4	25·1	+0·9	+0·2	+0·7
	Central do.	93·8	78·3	86·1	15·5	30·7	+0·5	−0·3	+0·8
	North do.	88·2	76·1	82·2	12·1	22·8	—0·1	—0·2	+0·1
	Bengal Hills	65·0	56·0	60·5	9·0	17·1	−0·2	−0·2	0
	Orissa	93·5	79·8	86·7	13·7	28·3	+3·4	+0·2	+3·2
	Chota Nagpur	100·1	79·9	90·0	20·2	34·1	+4·9	+2·2	+2·7
	South Bihar	101·5	82·0	91·8	19·5	39·4	+2·9	+1·5	+1·4
	North do.	95·2	78·8	87·0	16·4	33·1	+0·7	+0·4	+0·3

Province.	Division.	Actual temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
United Provinces of Agra and Oudh.	United Provinces (East)	105·4	83·8	94·6	21·6	36·0	+4·5	+1·6	+2·9
	Oudh (South)	103·6	83·1	93·4	20·5	38·5	+3·1	+1·8	+1·3
	United Provinces (Central)	105·0	84·4	94·7	20·7	39·7	+3·3	+1·9	+1·4
	Do. do. (West)	101·0	81·6	91·3	19·4	39·3	—1·9	—0·9	—1·0
	Do. do. (East Submontane).	100·8	80·2	90·5	20·6	40·2	+3·9	+0·5	+3·4
	Do. do. (West Submontane	96·7	78·0	87·4	18·8	37·0	—1·0	+0·4	—1·4
	Do. do. (Hills)	75·3	60·1	67·7	15·3	30·6	—1·0	—0·3	—0·7
Punjab and North-West Frontier Province.	Punjab (South-East)	100·5	82·0	91·3	18·5	39·6	—2·7	—1·3	—1·4
	Do. (South)	101·5	80·9	91·2	20·6	44·1	—2·5	—0·6	—1·9
	Do. (Central)	105·0	80·5	92·8	24·5	46·5	—2·4	+1·2	—3·6
	Do. (Submontane)	101·6	80·1	90·9	21·6	44·0	—2·3	—0·4	—1·9
	Do. (Hills)	80·8	57·2	69·0	23·6	43·7	—2·3	—1·9	—0·4
	Do. (North)	103·9	77·3	90·6	26·6	48·0	—0·5	+1·0	—1·5
	Do. (West)	105·8	82·0	93·9	23·8	47·8	—2·5	—0·9	—1·6
Bombay and Malabar Coast Districts (Madras).	Malabar	86·3	76·0	81·2	10·3	18·7	+1·9	+0·7	+1·2
	Madras (South Central)	93·8	74·3	84·1	19·5	28·9	+1·3	+1·4	—0·1
	Coorg	75·0	63·1	69·1	11·9	23·9	+2·1	—0·2	+2·3
	Mysore	86·1	68·2	77·2	17·9	27·6	+2·4	+0·5	+1·9
	Konkan	86·9	78·5	82·7	8·4	19·1	+0·5	+0·8	—0·3
	Bombay Deccan	91·3	71·6	81·4	19·7	35·0	+2·5	+0·1	+2·4
	Hyderabad (North)	97·3	73·4	85·4	23·9	39·4	...	...	...
	Khandesh	97·2	73·9	85·6	23·3	37·4	+4·6	+0·3	+4·3
Central Provinces and Berar.	Berar	104·0	80·8	92·4	23·2	37·4	+6·3	+3·6	+2·7
	Central Provinces (West)	104·4	82·4	93·4	22·0	37·8	+6·4	+3·7	+2·7
	Do. do. (Central)	103·2	80·9	92·1	22·2	38·4	+6·3	+3·2	+3·1
	Do. do. (East)	106·0	84·1	95·0	21·9	37·8	+8·7	+4·5	+4·2
Bombay (North)	Gujarat	99·6	81·7	90·6	17·9	30·0	+2·9	+1·7	+1·2
	Kathiawar and Cutch	95·2	80·5	87·9	14·7	28·9	+1·0	+0·5	+0·5
	Sind	101·4	82·2	91·9	19·2	43·3	—2·2	—0·5	—1·7
	Baluchistan Hills	95·1	60·0	77·6	35·1	48·9	+0·3	—0·1	+0·4
Rajputana and Central India.	Central India (East)	102·8	81·9	92·4	20·9	37·2	+4·5	+2·9	+1·6
	Rajputana (East), Central India (West)	102·8	82·1	92·5	20·7	40·8	+0·7	+0·5	+0·2
	Do. (West)	104·0	82·1	93·1	21·9	41·6	—1·4	—0·8	—0·6
Madras	East Coast (North)	96·0	82·0	89·0	14·0	30·4	+3·3	+0·8	+2·5
	Hyderabad (South)	98·4	76·7	87·6	21·8	36·8	+2·9	+1·1	+1·8
	Madras (Central)	98·1	77·7	87·9	20·4	35·4	+0·9	—0·1	+1·0
	East Coast (Central)	101·4	81·9	91·6	19·6	33·9	+1·7	+0·7	+1·0
	Do. (South)	98·9	79·9	89·0	19·0	34·6	+1·1	+1·6	—0·5
	Madras (South)	96·7	77·3	86·6	19·4	28·8	+2·9	+0·7	+2·2

The following gives a brief summary of the larger daily changes of temperature conditions during the month.

During the first three days of the month the weather was feebly disturbed with local thundershowers in Bengal and the southern half of the Peninsula and fine and dry over Northern and Central India. Temperature was during the period in slight to moderate defect in Bengal and the coast districts of Madras and more or less in excess over the greater part of the remainder of the country. The excess was most marked in the Central Provinces, Berar, Central India and Rajputana, where it ranged between 2° and 7°.

The following temperature data for the 2nd, a day typical of the period, show the character of the distribution prevailing on these three days:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 2nd June.	Mean minimum temperature, 2nd June.	Mean daily temperature, 2nd June.
	°	°	°
Burma	+2·8	+2·4	+2·6
Assam	+1·6	+0·8	+1·2
Bengal	—0·9	—3·6	—2·3
Orissa	—0·2	—2·0	—1·1
Bihar	—1·5	+0·6	—0·5
Chota Nagpur	+2·8	—2·2	+0·3
United Provinces of Agra and Oudh.	+2·2	+1·6	+1·9

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 2nd June.	Mean minimum temperature, 2nd June.	Mean daily temperature, 2nd June.
	°	°	°
Punjab	+5·1	+1·1	+3·1
Sind	+1·1	+1·5	+1·3
Rajputana	+4·1	+2·6	+3·4
Gujarat	+0·4	−0·3	+0·1
Central India	+4·9	−3·8	+4·4
Central Provinces	+4·6	+4·3	+4·5
Berar	+2·6	+4·9	+3·8
West Coast	+1·2	+2·9	+2·1
Bombay Deccan	+3·9	+1·1	+2·5
Mysore	+2·9	+2·6	+2·8
Madras Coast	−1·9	+0·4	−0·8
Madras Deccan	−2·2	+0·9	−0·7
South India	+0·6	+1·5	+1·1

Thundershowers continued in Bengal during the next two days and at the same time extended into the Gangetic Plain. Temperature hence fell in these areas, and on the 5th was more or less below the normal. Over the remainder of India and Burma temperature remained more or less largely above the normal, as is shown by the following data for the 24 hours preceding 8 A.M of the 5th:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 5th June.	Mean minimum temperature, 5th June.	Mean daily temperature, 5th June.
	°	°	°
Burma	+2·2	+0·4	+1·3
Assam	+1·4	+0·4	+0·9
Bengal	−5·2	−3·0	−4·1
Orissa	+1·7	+2·5	+2·1
Bihar	−9·1	−2·0	−5·6
Chota Nagpur	−5·6	+0·9	−2·4
United Provinces of Agra and Oudh	−0·5	−2·0	−1·3
Punjab	+6·3	+3·0	+4·7
Sind	+1·7	+3·4	+2·6
Rajputana	+1·7	+0·9	+1·3
Gujarat	+1·5	+1·8	+1·7
Central India	+4·3	+2·3	+3·3
Central Provinces	+6·6	+4·6	+5·6
Berar	+4·6	+4·2	+4·4
West Coast	+2·6	+1·1	+1·9
Bombay Deccan	+2·7	+1·5	+2·1
Mysore	+4·3	+1·3	+2·8
Madras Coast	+1·3	+2·1	+1·7
Madras Deccan	+3·7	+3·9	+3·8
South India	+1·4	+1·2	+1·3

The highest temperatures of the month were generally recorded in Upper and Central India and the Peninsula during this period of excessive temperature. The following gives the highest exceeding 112°:—

AREA.	STATION.	Highest maximum temperature recorded in June 1902.	Date on which recorded.	Highest maximum temperature recorded in June previous to 1902.	Year in which recorded.
		°		°	
UNITED PROVINCES.	Jhansi	114·4	2nd and 4th	119·2	1873
	Mainpuri	113·7	2nd	118·2	1897
	Agra	113·5	5th	120·3	1878
	Cawnpore	112·6	2nd	117·1	1901
PUNJAB	Dera Ismail Khan.	119·7	5th	121·5	1882
	Mooltan	119·0	5th	121·0	1897
	Khushab	118·9	4th	120·4	1896, 1897
	Peshawar	117·5	7th	119·0	1880
	Lahore	117·4	4th	119·5	1880
	Sialkot	117·0	4th	120·0	1876
	Montgomery	117·0	3rd	120·6	1897
	Sirsa	115·8	3rd	118·4	1889, 1891
	Rawalpindi	114·0	7th and 15th	118·0	1880
	Ludhiana	113·9	4th and 5th	118·3	1881
SIND	Jacobabad	125·0	5th	126·0	1897
RAJPUTANA	Bikaner	115·8	1st	119·8	1897
	Bharatpur	114·5	5th		
	Kotah	114·1	2nd and 4th	118·6	1897
	Pachpadra	113·5	1st and 3rd	122·1	1897
	Jaipur	113·2	1st	117·5	1897
	Sambhar	112·5	1st	117·0	1897
	Jodhpur	112·2	1st	121·3	1897
	Deesa	112·1	1st	119·4	1897
CENTRAL INDIA.	Nowgong	114·0	2nd	117·2	1878
	Sutna	113·6	4th	116·8	1889
CENTRAL PROVINCES.	Sambalpur	114·6	6th	114·4	1878
	Nagpur	114·2	1st	117·3	1878
	Chanda	114·2	4th	117·9	1878
	Raipur	113·5	4th and 5th	115·6	1878
	Hoshangabad	112·0	4th	118·5	1889
BERAR	Akola	112·6	4th	113·7	1889
	Amraoti	112·5	1st	113·0	1898
MADRAS	Masulipatam	112·7	6th	115·9	1878
	Cocanada	112·5	6th	111·0	1901

It may be noted that only at Sambalpur and Cocanada were the highest maximum temperatures recorded during

the month higher than the highest readings previously on record in the month of June.

The pressure distribution over India at this time favoured the extension of sea winds into the interior of Northern and Central India, and dust and thunderstorms occurred at a large number of stations in these areas, causing a rapid reduction of temperature. Consequently on the 6th the mean temperature was below the normal in a large tract of country stretching eastwards from Sind to Assam and in Lower Burma, but was in excess over the remainder of the Indian region.

The following gives comparative temperature data for this day:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 6th June.	Mean minimum temperature, 6th June.	Mean daily temperature, 6th June.
	°	°	°
Burma	−0·8	+0·5	[−0·2
Assam	−1·7	−1·3	−1·5
Bengal	−0·6	−1·5	−1·1
Orissa	+3·1	−0·9	+1·1
Bihar	−4·2	−4·5	−4·4
Chota Nagpur	+0·3	−3·0	−1·4
United Provinces of Agra and Oudh.	−4·3	−4·2	−4·3
Punjab	+2·5	−1·3	+0·6
Sind	−0·9	+2·2	+0·7
Rajputana	−0·6	+0·9	+0·2
Gujarat	+0·3	+1·5	+0·9
Central India	+0·9	−0·2	+0·4
Central Provinces	+5·5	+2·5	+4·0
Berar	+3·7	+3·1	+3·4
West Coast	+1·6	+0·5	+1·1
Bombay Deccan	+4·5	+0·8	+2·7
Mysore	+2·8	+0·1	+1·5
Madras Coast	+6·1	+3·9	+5·0
Madras Deccan	+3·9	+2·2	+3·1
South India	+3·0	+0·5	+1·8

The large excess in the Madras Coast districts shown in the preceding table was, it may be noted, associated with the prevalence of strong westerly winds in that area.

The first advance of monsoon winds occurred on the West Coast on the 7th and 8th and feeble monsoon influences extended from that area into the interior of the Peninsula. These influences produced a large effect on the temperature, which fell rapidly, and was on the morning of the 9th in slight to moderate defect in the western half, and in moderate excess in the eastern half, of the Peninsula.

The following gives data for the Peninsular divisions:—

Division.	Variation from normal of		
	Mean maximum temperature, 9th June.	Mean minimum temperature, 9th June.	Mean daily temperature, 9th June.
	°	°	°
West Coast	−3·3	−0·9	−2·1
Bombay Deccan	−1·1	−0·5	−0·8
Mysore	+0·6	+0·4	+0·5
Madras Coast	+3·3	+2·0	+2·7
Madras Deccan	+0·4	−0·4	0
South India	−0·1	−0·2	−0·2

Temperature variations were very irregular on this day in Extra-Tropical India and Burma, as is shown by the following data:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 9th June.	Mean minimum temperature, 9th June.	Mean daily temperature, 9th June.
	°	°	°
Burma	+1·0	+0·1	+0·6
Assam	+3·9	+2·3	+3·1
Bengal	−0·2	+0·9	+0·4
Orissa	−1·9	−0·8	−1·4
Bihar	−0·4	−0·3	−0·4
Chota Nagpur	−4·4	−0·7	−2·6
United Provinces of Agra and Oudh.	−1·0	+1·6	+0·3
Punjab	+1·3	+2·9	+2·1
Sind	−1·8	+1·8	0
Rajputana	+3·8	+4·1	+4·0
Gujarat	+1·3	+2·4	+1·9
Central India	+0·9	+0·7	+0·8
Central Provinces	+1·6	+0·2	+0·9

No important change in the general character of the temperature distribution shewed in the Peninsula during the next three days, temperature continuing in defect in the west, and in excess in the east, of that area. The following data of the 12th for the various divisions of

the Peninsula will indicate the chief features of the temperature conditions during this period :—

Province or Division.	Variation from normal of Mean maximum temperature, 12th June. 1902.	Mean minimum temperature, 12th June. 1902.	Mean daily temperature, 12th June 1902.
	°	°	°
West Coast	−1·6	−0·3	−1·0
Bombay Deccan	−5·3	−1·0	−3·2
Mysore	−0·5	−0·2	−0·4
Madras Coast	+2·8	+2·4	+2·6
Madras Deccan	−0·7	+0·6	−0·1
South India	−0·8	+1·1	+0·2

A series of thunderstorms occurred in the Punjab and the United Provinces between the 9th and the 12th and produced a large fall of temperature.

The following variation data will show the changes which occurred in these areas during this period :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 9th June.	10th June.	11th June.	12th June.
	°	°	°	°
Punjab	+2·1	−4·0	−4·5	−2·2
United Provinces of Agra and Oudh.	+0·3	−2·5	−6·7	−4·0

During the same period showers were of daily occurrence in Bengal and Orissa and temperature was normal or in defect in these areas.

The following gives variation data for this area :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 9th June.	10th June.	11th June.	12th June.
	°	°	°	°
Bengal	+0·4	0	−0·1	+0·5
Orissa	−1·4	−0·9	−1·7	−0·8
Bihar	−0·4	−0·9	−1·4	−3·7
Chota Nagpur	−2·6	−1·7	−3·0	−3·1

Weather was warmer than usual during this period in Sind, Rajputana, Gujarat and the greater part of the Central Provinces and Central India, as is shown by the following data :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 9th June.	10th June.	11th June.	12th June.
	°	°	°	°
Sind	0	+0·9	+0·6	+2·3
Rajputana	+4·0	+3·9	+2·6	+4·3
Gujarat	+1·9	+1·8	+1·9	+2·1
Central India	+0·8	+2·3	+1·3	+1·3
Central Provinces	+0·9	+1·0	+0·2	+1·3
Berar	+3·2	+4·4	+2·7	+3·2

The temperature changes were large and irregular during the next four or five days, being determined by the movements of the first and second cyclonic storms of the month. The storm in the Arabian Sea drifted slowly north-north-westwards parallel with the coast from the neighbourhood of Veraval on the 13th to the west of Kurrachee on the 16th. It gave showers in Gujarat from the 13th to the 15th and in Sind from the 15th to the 17th. The low temperature conditions, which were restricted to the Konkan on the 12th, extended into Gujarat on the 14th and Sind and Rajputana on the 15th.

The following table giving mean variation data of the Bombay Presidency and Rajputana for the period 13th to 16th shows clearly the northward extension of the low temperature conditions during the progress of the storm :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 13th June.	14th June.	15th June.	16th June.
	°	°	°	°
West Coast	−1·4	−0·7	−1·2	+0·3
Bombay Deccan	−3·0	−2·5	−2·0	−2·3
Gujarat	−0·3	−3·8	−3·3	−2·6
Sind	+5·2	+5·2	−2·4	−7·3
Rajputana	+5·5	+1·7	0	−0·1

The following variation data for two stations for the 13th and 16th show the large effect produced on the temperature conditions by the moderate rainfall accompanying the storm :—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 13th.	16th	Change.
	°	°	°
Hyderabad	+6·4	−10·0	−16·4
Bhuj	+1·8	−8·9	−10·7

The storm in the Bay crossed the Bengal Coast on the 13th and broke up in East Bengal by the morning of the 15th. It occasioned a moderately heavy burst of rain in Assam, Bengal and the interior of Burma, which reduced temperature considerably.

The following variation data of the 13th and 16th for these areas show the temperature effect of the storm :—

AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		Change.
	13th.	16th.	
	°	°	°
Burma (Interior)	−0·9	−1·2	−0·3
Assam	+1·6	−4·7	−6·3
Bengal	−0·1	−1·6	−1·5

Over the region intervening between the two areas of deficient temperature, the weather was considerably warmer than usual throughout this period. The following gives data for this area of increased temperature :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	13th.	14th.	15th.	16th.
	°	°	°	°
Chota Nagpur	+0·4	+1·8	+2·5	+4·9
United Provinces of Agra and Oudh.	−0·4	+2·4	+5·9	+5·4
Central India	+3·6	+2·1	+3·0	+2·1
Central Provinces	+3·6	+4·0	+4·1	+4·0
Berar	+2·8	+3·7	+6·6	+4·5

The monsoon current decreased rapidly in strength on the 16th and 17th and withdrew for a time from the east of the Arabian Sea. With the setting in of fine weather in the West Coast districts, temperature increased rapidly, and on the 19th was in moderate to very large excess over the whole of the Peninsula, the Central Provinces and Central India. The following data for the 24 hours ending at 8 A.M. on the 19th, illustrate this change :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 19th June.	Mean minimum temperature, 19th June.	Mean daily temperature, 19th June.
	°	°	°
Central India	+4·1	+2·9	+3·5
Central Provinces	+9·2	+5·2	+7·2
Berar	+6·5	+4·6	+5·6
West Coast	+2·6	+2·8	+2·7
Bombay Deccan	+5·2	−0·3	+2·5
Mysore	+5·8	+1·2	+3·5
Madras Coast	+1·5	+1·2	+1·4
Madras Deccan	+4·4	+3·0	+3·7
South India	+4·0	+1·4	+2·7

The current in the Bay also weakened during this period and the rainfall hence decreased considerably, both in amount and extent, and at the end of the period was confined chiefly to Assam and North Bengal. Temperature hence rose briskly in North-East India and on the 19th was more or less above the normal over the whole of that area, with the exception of Assam and East Bengal. The following gives variation data of the various divisions of North-East India for the 17th and 19th in illustration :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	17th June.	19th June.
	°	°
Assam	−5·5	−4·0
Bengal (excluding East Bengal)	−2·2	+0·2
Orissa	+1·6	+0·6
Bihar	−3·4	+4·0
Chota Nagpur	+3·3	+8·6

Rain continued in Sind on the 17th and 18th and accentuated the deficiency of temperature obtaining in that area on the previous two days.

The following gives variation data for this area for these two days :—

AREA.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	17th.	18th.
Sind	−10·8	−11·1

The reduction of temperature in this area was much larger in the day than in the night temperature, as is shown clearly by the following data for Hyderabad and Jacobabad for the 18th :—

STATION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 18th June.	Mean minimum temperature, 18th June.	Mean daily temperature, 18th June.
	°	°	°
Hyderabad	−21·7	−9·2	−15·5
Jacobabad	−13·7	−6·7	−10·2

A rapid increase of temperature in that area during the next 24 hours reduced the deficiency to 5·1°.

Weather was at this time disturbed in the Punjab and Rajputana, and the mean temperature of the 24 hours preceding 8 A.M. of the 19th was below the normal by amounts averaging 1·8° in the former, and 3·8° in the latter, area. The fairly general rain which occurred in Upper India from the 20th to the 24th caused a further rapid decrease of temperature, and unusually cool weather obtained in that area until the 27th.

The following gives variation data showing the duration and intensity of this period of abnormally cool weather.—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of								
	20th.	21st.	22nd.	23rd.	24th.	25th.	26th.	27th.	28th.
	°	°	°	°	°	°	°	°	°
Punjab	−7·1	−11·5	−13·1	−10·7	− 8·8	−12·5	− 7·4	− 4·5	−0·9
North-Western Districts of United Provinces.	−2·6	−11·6	− 9·7	−10·7	− 5·8	− 4·4	− 2·7	− 1·0	+1·1
Rajputana	−7·3	− 6·5	− 4·8	− 3·1	− 2·0	− 3·7	− 8·6	− 4·6	−0·4
Sind	−3·5	− 3·8	− 4·6	− 2·9	− 3·2	− 3·7	− 6·9	− 3·8	−0·7
Further Kashmir	−2·4	− 5·6	−10·7	−14·8	−12·6	− 8·3	−10·8	−11·0	−3·6
Baluchistan	+1·1	− 3·5	− 3·1	− 2·4	− 1·8	− 1·5	− 4·7	− 2·2	−4·7

The data show that the abnormal coolness lasted from the 20th to the 27th, and was on the whole most marked in the Punjab and Kashmir.

The following table, giving variation data for the two stations at which on each day the defect was greatest, shows more clearly than the preceding statement the character of the abnormal temperature conditions in Upper India at this time :—

Date.	Station.	Variation from normal of		
		Mean maximum temperature.	Mean minimum temperature.	Mean daily temperature.
		°	°	°
20th	Bikaner	−21·9	− 8·1	−15·0
	Sirsa	−15·5	−10·0	−12·8
21st	Murree	−15·6	−16·2	−15·9
	Roorkee	−19·3	− 7·6	−13·5
22nd	Murree	−20·9	−19·1	−20·0
	Montgomery	−16·4	−17·1	−16·8
23rd	Murree	−16·7	−13·0	−14·9
	Montgomery	−18·1	− 9·6	−13·9
24th	Murree	−20·0	−22·9	−21·5
	Montgomery	− 9·8	−14·1	−12·0
25th	Rawalpindi	−27·4	−11·0	−19·2
	Cherat	−20·7	−13·8	−17·3
26th	Bikaner	−17·0	−12·1	−14·6
	Sambhar	−15·1	− 8·6	−11·9
27th	Mooltan	−14·5	− 8·3	−11·4
	Montgomery	−11·2	− 6·6	− 8·9
28th	Murree	− 6·4	− 3·3	− 4·9
	Montgomery	− 5·0	− 3·0	− 4·0

Temperature increased rapidly in North-West India on the 28th and 29th and at the close of the month was 5° above the normal in the Punjab and Rajputana and ½° in Sind.

An almost complete break in the rains obtained over the Peninsula and Central and North-East India during the last ten days of the month and weather was fine over the whole of that area except locally in Assam, East and North Bengal and South India where occasional thundershowers occurred. Temperature was hence more or less above the normal over the greater part of the area throughout the period, as is shown by the following variation data for each alternate day from the 20th to the 30th :—

Province or Division	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	20th.	22nd.	24th.	26th.	28th.	30th.
	°	°	°	°	°	°
Assam	−5·1	−4·3	−2·5	−1·4	+0·4	− 5·8
Bengal	+1·1	+1·7	+4·0	+1·7	+2·1	− 1·1
Orissa	+1·5	+3·5	+4·4	+1·7	+3·3	+ 5·2
Bihar	+6·4	+6·5	+5·9	+7·1	+7·4	+ 5·5
Chota Nagpur	+9·8	+9·5	+6·8	+8·6	+8·4	+10·9
United Provinces of Agra and Oudh.	+2·5	−1·7	−1·0	+3·1	+7·0	+10·7
Gujarat	+0·8	+2·0	+1·9	+3·2	+3·8	+ 4·2
Central India	+2·8	+4·2	+2·3	+5·5	+8·0	+10·8
Central Provinces	+8·1	+8·7	+7·1	+9·2	+8·2	+ 9·6
Berar	+7·1	+7·1	+5·7	+8·6	+7·1	+ 5·3
West Coast	+2·9	+2·4	+1·4	+2·2	+4·0	+ 3·0
Bombay Deccan	+3·4	+3·1	+2·9	+4·0	+6·9	+ 3·4
Mysore	+3·3	+2·1	+1·5	+4·0	+6·0	+ 4·4
Madras Coast	−0·8	+1·6	+0·9	+3·5	+0·9	− 0·2
Madras Deccan	+2·0	+1·3	+2·7	+4·8	+4·3	− 0·1
South India	+1·8	+1·1	+1·1	+1·1	+2·3	+ 2·2

The excess was throughout the period greatest and most persistent in Chota Nagpur, Berar, the Central Provinces and Central India, and was exhibited much more largely in the day than the night temperature.

From the preceding account of the temperature changes from day to day it will be seen that the temperature conditions were very abnormal over the Indian area during the month and more especially during the last ten days when temperature was unusually low over Upper India and excessive over the area, including Berar, the Central Provinces, Central India and Chota Nagpur.

Winds.

Winds were on the mean of the month above their normal strength at Port Blair and Diamond Island and were more westerly than usual.

The following gives data in illustration :—

STATION.	MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, June 1902.	Normal, June.	Westerly deflection.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	°	°	°			
Port Blair . . .	S 64 W	S 43 W	+21	337	231	+106
Diamond Island . .	S 67 W	S 35 W	+32	262	216	+ 46

Winds were somewhat stronger than usual at the Coast stations of Bengal, of normal intensity in the interior, as represented by Calcutta, and below the normal strength on the Orissa coast. They were more southerly than usual over the whole of the Coast between Chittagong and False Point.

The following gives comparative data for four stations :—

AREA.	STATION.	MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
		Actual, June 1902.	Normal, June.	Southerly deflection.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
		°	°				
Coast	Chittagong .	S 1 E	S 24 E	+23	171	160	+11
Coast	Saugor Island	S 2 E	S 12 W	+12	426	372	+54
Coast	False Point .	S 20 W	S 37 W	+17	284	303	−19
Interior	Calcutta .	S 6 E	S 3 E	− 3	139	142	− 3

The air movement differed considerably from the normal in the East Punjab, East Rajputana, the United Provinces, Bihar and Chota Nagpur in consequence of the unusual position of the monsoon trough of low pressure which lay much further north than usual.

The abnormal character of the air movement in these areas is shown below :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, June 1902.	Normal percentage, June.	Variation of actual from normal, June 1902.	Actual, June 1902.	Normal, June.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
				°	°			
Lahore . . .	18	6	+12	S 11 W	N 19 E	87	88	− 1
Ludhiana . . .	20	8	+12	S 15 E	S 64 W	82	64	+18
Jaipur . . .	78	45	+33	S 72 W	N 66 W	190	165	+25
Dehra Dun . .	63	16	+47	S 71 W	S 53 W	52	40	+12
Roorkee . . .	7	17	−10	S 25 W	S 10 E	106	95	+11
Meerut . . .	20	10	+10	S 49 W	N 16 W	62	64	− 2
Allahabad . . .	33	15	+18	N 35 W	N 9 W	266	166	+100
Darbhanga . .	67	70	− 3	S 69 E	S 85 E	97	148	−51
Hazaribagh . .	32		+17	N 42 W	S 38 W	209	225	−16

The preceding data show the prevalence of north-west winds in Chota Nagpur and the eastern districts of the United Provinces, and of south-south-west to west-south-west winds in East Rajputana and the north-western districts of the United Provinces.

Winds differed little from the normal in strength, direction or steadiness in the Indus Valley and South-West Rajputana.

The following gives data for the four stations in these areas :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, June 1902.	Normal percentage, June.	Variation of actual from normal, June 1902.	Actual, June 1902.	Normal, June.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
				°	°			
Peshawar . . .	37	31	+ 6	N 33 E	N 41 E	89	113	− 24
Jacobabad . .	69	45	+24	S 31 E	S 33 E	129	125	+ 4
Kurrachee . . .	72	85	−13	S 53 W	S 62 W	416	423	− 7
Deesa . . .	80	70	+10	S 56 W	S 42 W	432	397	+35

Winds were unusually strong in Berar, the Central Provinces and the Bombay Deccan, due chiefly to the prevalence of unusually steep gradients accompanying strongly marked hot weather conditions in these districts during the second half of the month. Their direction on the average of the month was, however, normal.

The following gives data for three typical stations illustrating these features :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, June 1902.	Normal, June.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	°	°			
Sholapur . . .	N 87 W	S 86 W	463	316	+147
Akola . . .	N 63 W	N 68 W	319	223	+ 96
Nagpur . . .	N 81 W	N 83 W	321	240	+ 81

Winds were even more largely above their normal strength at the hill stations in these areas, as is shown by the following data :—

Station.	Mean wind velocity in miles per diem.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
Pachmarhi	306	206	+100
Chikalda	294	234	+ 60
Mount Abu.	400	254	+146

Winds were on the mean of the month somewhat more southerly and less westerly than usual at the Konkan Coast stations, as is shown by the following data :—

Station.	Mean wind direction.		
	Actual, June 1902.	Normal, June.	Southerly deflection.
	°	°	
Bombay	S 62 W	S 64 W	+ 2
Karwar	S 56 W	S 73 W	+17

The Arabian Sea current set in feebly on the Malabar and South Konkan Coasts on the 7th and 8th and on the North Konkan Coast, on the 11th. It was strong during the next four days, but fell off rapidly in strength on the 16th and at the same time retreated from the east of the Arabian Sea.

Winds were considerably above their normal strength at the West coast stations during the first half of the month and lighter than usual during the second half.

The following velocity data for Karwar and Bombay illustrate these features :—

Station.	Actual wind velocity during		Normal wind velocity in June.
	First half of month (miles per diem).	Second half of month (miles per diem)	
Bombay . . .	364	272	376
Karwar . . .	171	114	128

Winds were generally below their normal strength and steadiness in Southern India (south of Lat. 15° N.) but the westerly element in their directions was more pronounced than usual, a consequence of the large excess of pressure over the northern half of the Peninsula.

The following gives data for three representative stations :—

Station.	Mean steadiness.			Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual percentage, June 1902.	Normal percentage, June.	Variation of actual from normal, June 1902.	Actual, June 1902.	Normal, June.	Westerly deflection.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
				°	°				
Salem . .	33	76	−41	S 65 W	S 54 W	+11	56	113	− 57
Mysore . .	75	77	− 2	S 78 W	S 75 W	+ 3	261	365	−104
Madras . .	32	61	−29	S 62 W	S 36 W	+26	209	212	− 3

Winds were stronger and steadier than usual at the stations on the outer ranges of the Himalayas but varied irregularly in direction from the normal from station to station. They were feebler and more southerly than usual in Kashmir and Baluchistan.

The following data for typical stations illustrate these features :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, June 1902.	Normal percentage, June.	Variation of actual from normal, June 1902.	Actual, June 1902.	Normal, June.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
				°	°			
Quetta . . .	17	39	−22	S 70 W	N 75 W	50	84	−34
Leh	22	31	− 9	S 34 W	S 81 W	60	57	+ 3
Srinagar . . .	13	5	+ 8	S 29 W	S 69 E	79	86	− 7
Simla . . .	28	18	+10	N 44 W	N 12 W	132	97	+35
Chakrata . . .	68	52	+16	S 7 E	S 73 W	241	153	+88
Ranikhet . . .	53	46	+ 7	N 87 W	S 67 W	107	84	+23
Darjeeling . . .	45	8	+37	S 15 W	S 9 W	131	124	+ 7

It may be noted in connection with the abnormal weakness of the Arabian Sea current that winds were on the average of the month feebler and somewhat more easterly than usual at the Seychelles and Zanzibar. The following gives data in illustration :—

STATION.	MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, June 1902.	Normal, June.	Easterly deflection.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	°	°				
Seychelles . .	S 26 E	S 21 E	+5	264	278	−14
Zanzibar. . .	S 7 E	S 4 E	+3	196	216	−20

The following summarizes the chief features of the air movement over India during the month :—

(1) The first advance of the monsoon occurred on the West Coast on the 7th or 8th (slightly later than usual), but it was not so vigorous as usual, and the current retreated temporarily about the 16th. Winds were hence strong and steady in the West Coast districts during the first half of the month and feeble and unsteady during the second half. Their direction on the mean of the month was somewhat more southerly than usual.

(2) The Bay current set in over Bengal on the 13th (about the usual date) and prevailed steadily until the 25th when it fell off and was very weak during the next four days, with, however, a marked tendency to increase at the end of the month.

(3) Winds were considerably stronger and much more westerly than usual at Port Blair and on the Pegu Coast, indicating an unusually strong set of the Bay current to Tenasserim and Lower Burma.

(4) Winds were above their normal strength and more southerly than usual on the Bengal Coast and were hence determined more largely than usual to East and North Bengal and Assam.

(5) Abnormal north-west winds prevailed in Chota Nagpur and the eastern districts of the United Provinces and south-south-west to west-south-west winds in East Rajputana and the north-western districts of the United Provinces due to the abnormally northerly position of the monsoon trough of low pressure.

(6) Winds were remarkably strong in Berar, the Central Provinces and the West Deccan, in consequence of the prevalence of unusually steep gradients during the second half of the month, accompanying strongly marked hot weather conditions.

(7) Winds were more westerly than usual in Southern India.

(8) Winds were less vigorous and more easterly than usual at the Seychelles and Zanzibar.

Humidity and Cloud.

One of the most noteworthy features of the meteorology of the month was the great dryness of the air over by far the greater part of the country, a consequence (1) of the weakness of the monsoon currents, (2) of their failure to penetrate inland into the Peninsula, Central India and the Gangetic Plain, areas in which monsoon conditions, of high humidity and moderate to heavy rainfall, are usually established in the second or third week of June, and (3) of their temporary retreat from the east of the Arabian Sea about the middle of the month.

In the Andamans and Lower Burma the air contained somewhat more vapour than usual but in consequence of increased temperature the relative humidity was below the normal.

The following gives data for stations in these areas :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	"	"	"	%	%	
Port Blair . .	·927	·916	+·011	85	86	−1
Rangoon . .	·903	·902	+·001	87	89	−2
Diamond Island .	·898	·888	+·010	85	86	−1
Cocos Island . .	·934	·918	+·016	85	86	−1

The mean humidity conditions of the month were normal in East Bengal, Bihar and the submontane districts of the United Provinces.

The following gives data for stations in these areas:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	"	"	"	%	%	
Chittagong . .	·920	·869	+·051	87	86	+1
Darbhanga . .	·935	·912	+·023	76	76	0
Roorkee . .	·650	·656	—·006	53	52	+1
Meerut . .	·676	·693	—·017	53	52	+1

The amount of aqueous vapour present in the air was more or less below the normal over the whole of the Central Provinces, Central India, Rajputana, the Gangetic Plain, Chota Nagpur, Lower Bengal, the Konkan and Mysore. As the temperature of the month was also more or less in excess in this region the mean relative humidity was largely below the normal in these areas. The variations, however, varied considerably in amount from station to station owing chiefly to varying local conditions.

The following gives comparative data for five stations where the mean relative humidity was upwards of 10 below the normal:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	"	"	"	%	%	
Hazaribagh . .	·623	·692	—·069	51	66	—15
Allahabad . . .	·652	·769	—·117	43	56	—13
Buldana . . .	·568	·664	—·096	50	65	—15
Khandwa . . .	·643	·714	—·071	47	60	—13
Nagpur . . .	·652	·718	—·065	46	60	—14

The preceding data show that on the whole the dryness was most pronounced in Berar, the Central Provinces, Chota Nagpur and the eastern districts of the United Provinces, the region where the largest excess of temperature shewed.

The air was also slightly drier than usual in the Madras Coast districts and South India, due solely to increased temperature, as the amount of vapour in the air was in excess, as is shown by the following data for Madras and Salem:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	"	"	"	%	%	
Madras . .	·844	·815	+·029	63	65	—2
Salem . . .	·774	·761	+·013	65	69	—4

The decreased humidity was almost as marked a feature at the lower hill stations as at the plains stations in Northern and Central India.

The following gives data for these stations:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	"	"	"	%	%	
Chakrata . .	·400	·416	—·016	65	67	—2
Ranikhet . .	·443	·472	—·029	62	66	—4
Darjeeling . .	·478	·492	—·014	91	94	—3
Mount Abu . .	·527	·573	—·046	63	68	—5
Pachmarhi . .	·549	·600	—·051	53	66	—13
Chikalda . .	·582	·599	—·017	61	72	—11

The air was, on the other hand, considerably damper than usual at Srinagar and Leh, data for which are given below:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
	"	"	"	%	%	
Srinagar . . .	·625	·557	+·068	84	73	+11
Leh	·190	·172	+·018	45	38	+ 7

The air was much damper than usual at Perim (+ 13) and the Seychelles (+ 6).

The chief local features of the humidity conditions of the month were hence as follows:—

(1) Normal or slightly increased humidity in Sind, the Punjab, the submontance districts of the United Provinces, East Bengal and Bihar.

(2) Decreased humidity over Burma, Lower Bengal, Orissa, Chota Nagpur, the east of the United Provinces, Rajputana, Central India and the whole of the Peninsula including Berar and the Central Provinces. The deficiency was large and marked at Hazaribagh and Buldana (each—15), Nagpur (—14) and Khandwa and Allahabad (each—13).

(3) Decreased humidity on the outer ranges of the Himalayas and at the hill stations in Central India and Baluchistan and increased humidity on the inner ranges represented by Srinagar, Kailang and Leh.

The variations of cloud were similar in character to those of humidity at the great majority of stations.

The mean cloud amount of the month was less than usual in Lower Burma and the Bay Islands.

The following gives data in illustration:—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, June. 1902.	Normal, June.	Variation of actual from normal, June 1902.
Port Blair	7·2	7·5	—0·3
Rangoon	7·8	8·7	—0·9
Diamond Island	7·3	8·1	—0·8
Cocos Island	7·8	8·2	—0·4

There was somewhat more cloud than usual in Arakan, Bengal, Orissa, Bihar and Chota Nagpur.

The following gives data for these areas:—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, June 1902.	Normal June.	Variation of actual from normal, June 1902.
Akyab	8·2	7·5	+0·7
Chittagong	8·1	7·6	+0·5
Calcutta	7·8	7·1	+0·7
Saugor Island	7·9	7·7	+0·2
False Point	7·4	7·2	+0·2
Hazaribagh	8·1	7·5	+0·6
Darbhanga	5·2	4·7	+0·5

The mean cloud amount of the month was largely below the normal in the United Provinces, the Punjab, Rajputana, Central India, the Central Provinces, Berar, the Konkan and the West and South Deccan and slightly below in Lower Sind and the Madras coast districts.

The following gives data for these areas:—

DIVISION.	MEAN CLOUD AMOUNT.		
	Actual, June 1902.	Normal, June.	Variation of actual from normal, June 1902.
United Provinces	3·1	4·0	—·9
Punjab	1·7	2·8	—1·1
Lower Sind	3·8	4·3	—0·5
Rajputana	3·2	4·8	—1·6
Bombay Deccan	6·8	7·6	—0·8
Berar	3·8	6·5	—2·7
Madras Deccan	5·5	7·6	—2·1
Central Provinces	4·4	6·6	—2·2
West Coast	5·9	7·5	—1·6
Madras Coast	5·4	6·3	—0·9

The deficiency was largest in amount at Buldana (—3·6), Nagpur (—2·8) and Allahabad and Bellary (each —2·1). The area of greatest serenity thus coincided with the region of greatest dryness of the air.

Skies were somewhat more clouded than usual in South India to the south of Lat. 13° N and in Upper Sind, as is shown by the following data:—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, June. 1902.	Normal, June.	Variation of actual from normal, June 1902.
Jacobabad	1·6	0·9	+0·7
Mysore	8·3	7·8	+0·5
Bangalore	6·4	6·0	+0·4
Salem	6·2	6·0	+0·2

There was less cloud than usual at all the hill stations with the exception of Leh, Kailang, Quetta and Katmandu where skies were somewhat more clouded than usual. The deficiency was most marked at Chikalda (—1·8), Ranikhet (—2·1) and Pachmarhi (—2·7).

The following gives the chief features of the mean cloud distribution of the month:—

(1) Cloud was in slight excess in Arakan, Bengal, Bihar and Chota Nagpur and normal in Orissa.

(2) It was more or less below the normal over the United Provinces, the Punjab, Lower Sind, Central India, the Central Provinces, the Konkan, the Bombay and Madras Deccan and the North Coromandel Coast. The deficiency was, on the whole, most marked in the area of greatest dryness of the air, exceeding 2·0 at Buldana (—3·6), Nagpur (—2·8) and Allahabad and Bellary (each —2·1).

(3) Cloud was in very slight excess in South India to the south of Lat. 13° N. and also in Upper Sind.

(4) Cloud was generally in defect at the lower hill stations in Northern and Central India and in excess in Ladakh.

Rainfall.

The Malabar and Konkan Coast districts obtained light to moderate thundershowers during the first six days of the month. The monsoon rains proper set in on the South Konkan coast on the 7th and spread rapidly southwards along the Malabar Coast during the next 24 hours. Feeble monsoon influences extended rapidly from the coast into the interior and gave a series of thundershowers to Berar, the Central Provinces and Central India between the 8th and 15th. A storm formed on the 9th and 10th in front of the advancing monsoon current in the angle between the Konkan and Kathiawar coasts and advancing north-westwards parallel to the coast, passed into South Baluchistan on the afternoon of the 16th. The wave of monsoon winds which accompanied the storm gave the first burst of monsoon rains to Kathiawar and Gujarat between the 12th and 16th and to Sind from the 15th to 18th. An important effect of the storm was to draw off a large volume of the monsoon current from the Konkan and Malabar coasts, in consequence of which the rainfall in these areas, although general during the period from the 9th to the 16th, was not so heavy as is usual during the first burst of the monsoon. The dispersion of the storm was followed by the establishment of remarkable high pressure conditions in Western India and the neighbouring sea area and by a rapid decrease of air movement in the western half of the Equatorial region and the east of the Arabian Sea. These conditions lasted from the 17th to the 29th, during which period the rainfall was unusually light on the West coast and in the interior of the Peninsula, and occurred chiefly as local showers during thunderstorms. North-West India received a good burst of rain between the 19th and the 25th from a strong influx of humid winds across the Sind and Kathiawar coasts accompanying much steeper baric gradients than usual.

Bengal obtained frequent showers during the first twelve days. The advance of monsoon winds up the Bay began concurrently with their advance in the Arabian Sea, but, owing to abnormal pressure conditions then obtaining in the Bay was determined solely to Lower Burma, Tenasserim and Lower Siam.

The pressure changes on the 10th and 11th were such as permitted the current to advance northwards to Bengal. A storm formed in the east of the Bay, off the Arakan coast, on the 11th and 12th, and advancing rapidly along a curved path lay over the head of the Bay on the morning of the 13th. It crossed the Bengal coast during the day and passed into East Bengal, where it broke up before the morning of the 15th. Moderate to heavy rain commenced to fall in North and East Bengal on the 13th and continued during the next week. The Chittagong district obtained heavy downpours on the 14th and 15th, and the Jalpaiguri and Cooch Behar districts, between the 18th and 20th, falls ranging from 6 to 11 inches in 24 hours occurring at several stations. Moderate rain occurred in North Bihar from the 15th to the 18th, but the current failed to extend into the Gangetic Plain owing to the abnormal position of the trough of low pressure which at that time lay along the base of the Himalayas, or much further north than usual. The rainfall diminished rapidly in Bengal on the 21st and was light and local during the next six days. During this period rain in increasing amounts fell in Tenasserim, indicating a stronger set of the current than usual to that area. The abnormal conditions giving rise to this diversion of the current passed away on the 28th and 29th and heavy general rain recommenced in Bengal on the 30th. At the same time large changes occurred in the east of the Arabian Sea, which resulted in the re-establishment of monsoon conditions on the Malabar and South Konkan coasts.

The following gives the dates of the commencement of the south-west monsoon rains of 1902 in different parts of India:—

Province or Division.	Date of commencement of the monsoon rains in 1902.
Malabar	8th June.
South Konkan	7th "
North Konkan	12th "
West Rajputana	19th "
East Rajputana	20th "
Bengal	13th "
Bihar	16th "
United Provinces, West	20th "
Punjab	20th "

There was no heavy burst of rain during the month in the Central Provinces, Central India, Chota Nagpur and the east of the United Provinces such as usually marks the commencement of the monsoon, the rainfall received in these areas in the second and fourth weeks being due to feeble monsoon influences.

The distribution of the rainfall of the month was largely determined :—

1st.—By the slight delay in the establishment of the Bombay branch of the monsoon current.

2nd.—By the relative weakness of the Bombay current as compared with the Bengal current.

3rd.—By the tracks of the two cyclonic storms of the month.

4th.—By the failure of the Bombay current to advance *fully* into the interior of the Peninsula and the Central Provinces.

5th.—By the unusual pressure distribution in the Gangetic Plain which prevented the Bay current from advancing further westwards than Bihar.

6th.—By the prevalence of steep gradients in North-West India in the fourth week favouring a strong influx of humid winds across the Sind and Kathiawar coasts.

7th.—By the sudden retreat of the Bombay current from the east of the Arabian Sea in the middle of the third week of the month.

8th.—By the diversion of the Bay current to Burma during the fourth week of the month.

The chief abnormal features of the rainfall distribution of the month were :—

(1) Slight to moderate deficiency over the whole of Burma, except Upper Burma, where the total precipitation of the month was 23 per cent. above the normal.

(2) Slight to moderate excess in East Bengal and the Assam plains and more or less defect in the Assam hills and the remainder of Bengal. The deficiency was, relatively to the normal, least in the Bengal hills (2 per cent. and greatest in Chota Nagpur (67 per cent.).

(3) Moderate to large defect in the United Provinces, Central India, East Rajputana, the Central Provinces, Berar, Gujarat and Kathiawar.

(4) Excess over the greater part of the Punjab Plains, Sind, West Rajputana and Baluchistan.

(5) Deficiency over the whole of the Peninsula, with the exception of Central Madras and the East Coast Central where the falls were 26 and 33 per cent. above the respective normals. The deficiency was most marked in Malabar where it averaged 15·21 inches or 43 per cent.

The following table gives comparative rainfall data of June 1902 for the 56 meteorological divisions of India :—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, June 1902.	Average normal, June.	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.
				Inches.	Inches.	Inches.
Burma	Tenasserim	25·3	25·3	31·62	38·48	−3·86
	Lower Burma (Deltaic)	20 6	23·2	15·57	20·52	−4·95
	Central do.	16·3	16·4	9·41	10·52	−1·11
	Upper do.	10·8	9·3	8·05	6·56	+1·49
	Arakan	22·3	24·1	35·50	40·85	−5·35
Bengal and Assam	Eastern Bengal	17·3	16·4	23·67	18·19	+5·48
	Assam (Surma)	22·8	20·9	31·51	24·77	+6·74
	Do. (Hills)	20·8	20·7	25·11	29·16	−1·05
	Do. (Brahmaputra)	16·0	16·0	17·29	15·08	+2·21
	Deltaic Bengal	11·1	12·9	7·87	11·06	−3·19
	Central do.	9·4	11·8	8·07	10·58	−2·51
	North do.	14·9	15·7	18·95	20·94	−1·99
	Bengal Hills	20·6	19·5	19·99	20·38	−0·39
	Orissa	7·8	10·4	5·15	9·42	−4·27
	Chota Nagpur	6·2	10·6	3·08	9·26	−6·18
	Bihar (South)	4·1	7·9	3·19	6·96	−3·77
	Do. (North)	5·9	9·2	5·47	8·98	−3·51
United Provinces of Agra and Oudh.	United Provinces (East)	1·5	6·0	0·77	5·02	−4·25
	Oudh (South)	2·0	5·3	0·88	4·86	−3·98
	Do. (North)	2·8	6·3	1·70	5·72	−4·02
	United Provinces (Central)	1·8	5·1	0·64	4·43	−3·79
	Do. do. (West)	4·5	3·6	2·11	2·67	−0·56
	Do. do. (Submontane, East)	3·2	7·1	1·97	6·56	−4·59
	Do. do. (Do. West)	4·1	6·1	3·78	5·71	−1·93
	Do. do. (Hills)	6·4	10·9	4·62	8·80	−4·18

Province.	Division.	Number of rainy days. Average actual, June 1902.	Number of rainy days. Average normal, June.	Rainfall. Average actual, June 1902.	Rainfall. Average normal, June.	Rainfall. Variation of actual from normal, June 1902.
				Inches.	Inches.	Inches.
Punjab and North-West Frontier Province.	Punjab (South-East)	4·2	2·9	2·73	2·40	+0·33
	Do. (South)	3·4	2·1	2·40	1·62	+0·78
	Do. (Central)	3·9	2·2	2·68	1·58	+1·10
	Do. (Submontane)	3·6	3·1	2·23	2·78	−0·55
	Do. (Hills)	7·6	6·9	3·54	4·78	−1·24
	Do. (North)	3·2	1·9	2·30	1·11	+1·19
	Do. (West)	2·6	1·3	1·35	0·69	+0·66
Bombay and Malabar Coast Districts (Madras).	Malabar	17·7	23·9	20·33	35·54	−15·21
	Travancore	13·9		11·15		
	Madras (South Central)	2·3	3·7	1·62	1·99	−0·37
	Coorg	12·8		11·87		
	Mysore	5·0	6·6	3·28	4·18	−0·90
	Konkan	12·3	18·6	16·06	26·60	−10·54
	Bombay Deccan	8·1	8·8	5·33	6·01	−0·68
	Khandesh	4·4	8·0	2·65	5·70	−3·05
Central Provinces and Berar.	Berar	3·3	8·2	1·54	5·67	−4·13
	Central Provinces (West)	3·3	8·7	1·34	7·13	−5·79
	Do. do. (Central)	3·1	9·0	1·41	7·79	−6·38
	Do. do. (East)	3·6	9·6	1·43	8·76	−7·33
Bombay (North)	Gujarat	3·2	7·0	1·40	6·86	−5·46
	Kathiawar and Cutch	1·8	4·5	0·72	4·21	−3·49
	Sind	2·3	0·6	2·31	0·41	+1·90
	Baluchistan Hills	1·1	0·6	0·47	0·31	+0·16
Rajputana and Central India.	Central India (East)	2·5	6·9	1·09	6·80	−5·71
	Rajputana (East), Central India (West)	3·2	4·3	1·54	2·81	−1·27
	West Rajputana	2·4	2·1	1·77	1·39	+0·38
Madras	East Coast (North)	5·1	7·2	2·78	5·19	−2·41
	Madras Central	5·7	4·5	3·21	2·54	+0·67
	East Coast (Central)	4·2	2·9	2·16	1·63	+0·53
	East Coast (South)	2·8	3·3	1·53	1·93	−0·40
	Madras South	1·7	2·0	0·96	0·97	−0·01

More or less heavy rain fell daily in Tenasserim during the month, the only days of partial rainfall being the 2nd and 9th. The precipitation was moderately heavy on the 4th and 5th and again from the 20th to the 24th, falls of 2 to 4 inches in 24 hours being of frequent occurrence during these periods.

In Lower and Central Burma and Arakan, the weather was showery during the first five days of the month. General and moderately heavy rain set in on the 6th and continued during nearly the whole of the remainder of the month. The heaviest daily falls ranged between 2 and 5 inches at the great majority of stations and were hence not so heavy as are frequently recorded during the first burst of the monsoon in these areas. The following gives the most noteworthy:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M of date.
			Inches.
Tounghoo	Shwegyin	14th June	6·80
Akyab	Pabru	" "	6·40
Sandoway	Sandoway	15th "	6·42
Akyab	Rathedaung	16th "	6·26
	Maungdaw	29th "	7·95
	Rathedaung	" "	6·21

Light to moderate showers were received almost daily

in Upper Burma during the month. The 6th, 7th, 8th, 11th, 12th, 18th, 19th, 29th and 30th, however, were the only days on which they were general over the whole division.

The total rainfall of the month exceeded 40 inches at stations for which data are given below:—

DISTRICT.	STATION.	RAINFALL. Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.
		Inches.	Inches.	Inches.
TAVOY	Thayetchaung	43·82	47·38	−3·56
	Launglon	45·09	50·47	−5·38
AMHERST	Amherst	40·26	...	...
SANDOWAY	Sandoway	44·91	49·56	−4·65
KYAUK PYU	Kyauk Pyu	40·31	43·13	−2·82
	Ramree	48·98	40·32	+8·66

The rainfall of the month was, on the other hand, less than 5 inches in the following districts:—

DISTRICT.	RAINFALL. Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Thayetmyo	4·78	6·81	−2·03	−30
Magwe	4·35	4·51	−0·16	− 4
Myingyan	4·83	3·74	+1·09	+ 5
Kyaukse	3·76	3·31	+0·45	+14
Sagaing	4·91	4·41	+0·50	+11

The following table gives a summary of the rainfall data of the month for the five rainfall divisions of the province:—

DIVISION.	RAINFALL. Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.	NUMBER OF RAINY DAYS. Average actual, June 1902.	Average normal, June.
	Inches.	Inches.	Inches.			
Tenasserim	34·62	38·48	−3·86	−10	25·3	25·3
Lower Burma (Deltaic)	15·57	20·52	−4·95	−23	20.6	23·2
Central Burma	9·41	10·52	−1·11	−11	16·3	16·4
Upper ,,	8·05	6·56	+1·49	+23	10·8	9·3
Arakan	35·50	40·85	−5·35	−13	22·3	24·1

These data indicate that the rainfall of the month was more or less in defect in four out of the five rainfall divisions, the defect being absolutely largest in Lower Burma where it averaged 4·95 inches or 23 per cent.

Bengal received frequent rain from the 1st to the 12th due chiefly to series of local thunderstorms and nor'westers. The rainfall due to these storms was on the whole most general on the 2nd, 4th and 5th.

A feeble cyclonic storm formed in the Bay on the 11th and 12th which marched by a curved path into East Bengal on the 14th. A strong rush of humid winds accompanied this storm and initiated the first burst of monsoon rains in Bengal.

The monsoon rains of the present year hence began in Bengal on the 13th.

Strong monsoon winds prevailed from the 14th to the 20th and gave heavy rain in North and East Bengal and moderate rain in North Bihar. The rainfall was on the whole heaviest in the Jalpaiguri, Cooch Behar, Mymensingh and Chittagong districts.

The following gives the daily falls of 7 inches and over registered during this period:—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
NOAKHALI	Lakhmipur	14th June	7·50
CHITTAGONG	Satkania	15th ,,	10·29
TIPPERA	Comilla	16th ,,	7·02
MYMENSINGH	Mymensingh	17th ,,	7·40
TIPPERA	Nasirnagar	,, ,,	7·00
JALPAIGURI	Kalchini	18th ,,	7·95
DARJEELING	Siliguri	,, ,,	7·52
JALPAIGURI	Baxa	19th ,,	10·80
	Alipur Duar	,, ,,	9·54
	Falakata	,, ,,	9·35
COOCH BEHAR	Fulbari	20th ,,	10·50
	Mathabhanga	,, ,,	8·14
	Cooch Behar	,, ,,	8·04

The distribution of pressure obtaining in the Gangetic Plain at this time was unfavourable for the extension of the humid currents into South-West Bengal, Chota Nagpur and South Bihar, and these areas hence obtained only thundershowers during this period. The rainfall decreased rapidly in amount on the 21st, chiefly in consequence of the diversion of the Bay current to Burma and occurred only as local showers during the next six days. A change set in on the 27th and 28th when moderate rain recommenced in North and East Bengal which increasing and extending during the next twenty-four hours was general and heavy at the close of the month.

Weather, during the period from the 21st to the 30th, was fine and dry in Bihar and feebly unsettled with occasional thundershowers in Orissa and Chota Nagpur.

The following table gives a summary of the rainfall data of the month for the nine rainfall divisions of the province:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.	Average actual, June 1902.	Average normal, June.
	Inches.	Inches.	Inches.			
Eastern Bengal . .	23·67	18·19	+5·48	+30	17·3	16·4
Deltaic Bengal . .	7·87	11·06	—3·19	—29	11·1	12·9
Central Bengal . .	8·07	10·58	—2·51	—24	9·4	11·8
North Bengal .	18·95	20·94	—1·99	—10	14·9	15·7
Bengal Hills . .	19·99	20·38	—0·39	— 2	20·6	19·5
Orissa . . .	5·15	9·42	—4·27	—45	7·8	10·4
Chota Nagpur . .	3·08	9·26	—6·18	—67	6·2	10·6
South Bihar . .	3·19	6·96	—3·77	—54	4·1	7·9
North Bihar . .	5·47	8·98	—3·51	—39	5·9	9·2

The data show that the rainfall of the month was 30 per cent. in excess in East Bengal, normal in the Bengal Hills and more or less in defect over the remainder of the province. The deficiency was most marked in Chota Nagpur, which obtained only 33 per cent. of its normal amount.

The following data indicate the areas of greatest defect and excess :—

District.	Rainfall.			
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Pabna . . .	20·04	11·49	+8·55	+74
Dacca	19·66	12·64	+7·02	+56
Palamau . . .	0·48	6·80	—6·32	—93
Ranchi	2·44	9·64	—7·20	—75
Saran	2·56	7·91	—5·35	—68
Bankura . . .	3·92	10·83	—6·91	—64
Patna	2·89	7·71	—4·82	—63
Hazaribagh . . .	3·15	8·43	—5·28	—63
Gaya	2·45	6·52	—4·07	—62
Midnapore . . .	3·99	10·25	—6·26	—61
Birbhum . . .	4·50	11·30	—6·80	—60
Shahabad . . .	2·58	6·41	—3·83	—60
Singhbhum . . .	4·27	10·57	—6·30	—60
Manbhum . . .	4·10	9·59	—5·49	—57
Howrah . . .	4·92	10·93	—6·01	—55

Assam received frequent showers from thunderstorms during the first eleven or twelve days of the month. The rainfall due to these storms was most general in the Surma Valley from the 9th to the 11th, and in the Brahmaputra Valley on the 1st, 5th, 11th, and 12th.

This period was followed by a general and moderate to heavy burst of rain due to monsoon conditions, which lasted until the 24th, the rainfall during this period being heaviest in the Sylhet, Goalpara and hill districts.

The following gives the most notewo.thy falls recorded during the period:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Khasi and Jaintia Hills.	Wahmaulein . .	15th June .	13·62
Sylhet . .	Sunamganj . .	,, ,, .	11·22
	Lalakhal . . .	,, ,, .	11·00
Khasi and Jaintia Hills.	Cherra Poonjee . .	,, ,, .	10·55
Sylhet . . .	Sylhet . . .	,, ,, .	8·79
Khasi and Jaintia Hills.	Wahmaulein . .	16th ,, .	9·62
	Cherra Poonjee . .	18th ,, .	17·37
	Laitlyngkot . .	,, ,, .	9·85
	Mauphlang . . .	,, ,, .	9·17
	Wahmaulein . .	,, ,, .	8·43
Goalpara . .	Kachugaon . . .	19th ,, .	9·94
Khasi and Jaintia Hills.	Cherra Poonjee . .	,, ,, .	8·28
		21st ,, .	23·11
	Wahmaulein . .	,, ,, .	10·00
Sylhet . . .	Lalakhal . . .	,, ,, .	9·55
Goalpara . .	Bijni	,, ,, .	9·30
	Kachugaon . . .	,, ,, .	8·90
Khasi and Jaintia Hills.	Cehrra Poonjee . .	22nd ,, .	7·67
	Wahmaulein . .	23rd ,, .	14·35
	Cherra Poonjee . .	,, ,, .	11·52
	Wahmaulein . .	24th ,, .	16·73
	Cherra Poonjee. .	,, ,, .	7·67
		25th ,, .	8·11
Garo Hills . .	Tura	30th ,, .	7·84

The rainfall fell off rapidly on the 25th and occurred chiefly as local showers during the next two days. It increased again on the 28th and was moderately heavy and fairly general on the last two days of the month.

The rainfall of the month was practically normal in the hill districts and in slight to moderate excess in the plains

The following gives comparative data for the three divisions of the province:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.	Average actual, June 1902.	Average normal, June.
	Inches.	Inches.	Inches.			
Assam Surma . .	31·51	24·77	+6·74	+27	22·8	20·9
„ Hills . .	28·11	29·16	—1·05	—4	20·8	20·7
„ Brahmaputra .	17·29	15·08	+2·21	+15	16·0	16·0

The heaviest fall in 24 hours at Cherra Poonjee was 23·11 inches registered on the 21st. The total rainfall of the month at that station was 136·51 inches or 32·60 inches above the normal. Four-fifths of the whole amount occurred between the 15th and the 25th.

The United Provinces obtained rain almost solely during three periods. The first period was from the 4th to the 7th, during which the rainfall accompanied thunderstorms and was light and partial. The second period was from the 9th to the 12th, when the rainfall was moderate to heavy in the submontane and hill districts, moderate in the western districts and in Oudh and light and sporadic in the south-eastern, north-eastern and central districts.

The following gives the largest falls (exceeding 3 inches) recorded during this period:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Naini Tal . . .	Kashipur . . .	9th June	4·00
Almora . . .	Almora . . .	10th June	4·05
Bareilly . . .	Choreli . . .	„	3·90
Muradabad . .	Thakurdwara . .	„	3·80
Bareilly . . .	Baheri	„	3·54
Garhwal . . .	Lansdowne . . .	„	3·13

The third period extended from the 20th to the 22nd, corresponding to the first burst of monsoon winds over Upper India, and in this period the rainfall was moderate to heavy in the submontane, hill and western divisions and light and irregularly distributed in Oudh and the eastern and central districts. During this period absolutely no rain fell in the Gorakhpur, Basti, Azamgarh and Ballia districts.

Falls ranging between 2 and 5 inches were recorded at a large number of stations during this period. The following gives the more noteworthy:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 21st June 1902.
		Inches.
Saharanpur. . . .	Salimpur	4·60
„ . . .	Muhammadpur. . . .	3·50
„ . . .	Kuankhera	3·23
Garhwal	Lansdowne	3·14

The rainfall of the month was more or less below the normal over the whole of the province. The deficiency was least in actual amount in the western division (0·56 inch or 21 per cent.) and greatest in the east submontane division where it averaged 4·59 inches. It was also equally large in the eastern division (—4·25 or 85 per cent.), North Oudh (—4·02 inches or 70 per cent.) and Hills (—4·18 inches or 48 per cent.).

The following gives comparative data of the rainfall of the month for the eight divisions of the province:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.	Average actual, June 1902.	Average normal, June.
	Inches.	Inches.	Inches.			
United Provinces, East	0·77	5·02	—4·25	—85	1·5	6·0
South Oudh . .	0·88	4·86	—3·98	—82	2·0	5·3
North Oudh . .	1·70	5·72	—4·02	—70	2·8	6·3
United Provinces, Central . . .	0·64	4·43	—3·79	—86	1·8	5·1
United Provinces, West.	2·11	2·67	—0·56	—21	4·5	3·6
United Provinces, East Submontane . .	1·97	6·56	—4·59	—70	3·2	7·1
United Provinces, West Submontane . .	3·78	5·71	—1·93	—34	4·1	6·1
United Provinces Hills	4·62	8·80	—4·18	—48	6·4	10·9

There were three rainy periods during the month in the Punjab. The first period extended from the 9th to the 11th, during which the whole of the Punjab, with the exception of the Hissar, Ferozepur, Montgomery, Lahore, Jhang, Muzaffargarh, Peshawar, D. G. Khan and Dera Ismail Khan districts received light to moderate rain, chiefly from local disturbances. The second period began on the 12th and lasted until the 17th, during which the submontane and hill districts obtained light to moderate showers, chiefly from thunderstorms or duststorms. The third period lasted from the 19th to the 25th. The rainfall during this period was due to a strong advance of monsoon winds from the north-east of the Arabian Sea and was

light in the Peshawar, Bannu, Mooltan, Muzaffargarh, Dera Ismail Khan and Dera Ghazi Khan districts, and moderate to heavy over the remainder of the province.

The following statement, giving the daily falls which exceeded 2 inches in amount, indicates the region of heaviest rain during this burst :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
	Ramnagar	20th June.	4·48
GUJRANWALA	Wizirabad	,, ,,	4·06
GUJRANWALA	Hafizabad	,, ,,	3·37
GUJRANWALA	Pacca Dalla	,, ,,	2·90
ROHTAK	Gohana	,, ,,	2·86
GUJRANWALA	Khangah Dogran	,, ,,	2·60
GUJRANWALA	Gujranwala	,, ,,	2·30
DELHI	Delhi	,, ,,	2·16
SIALKOT	Daska	,, ,,	2·15
HISSAR	Hissar	,, ,,	2·13
JHANG	Muridwala	21st ,,	3·10
FEROZEPUR	Muktsar	,, ,,	2·48
JHANG	Sandyanwala	,, ,,	2·40
HISSAR	Tohana	,, ,,	2·32
PATIALA STATE	Jodhpur	,, ,,	2·10
JHANG	Laklani	,, ,,	2·05
KARNAL	Kaithal	,, ,,	2·03
UMBALLA	Dadupur	23rd ,,	2·20
RAWALPINDI	Fatahjang	24th ,,	2·25
LAHORE	Van	,, ,,	2·05

The following gives comparative data for the seven rainfall divisions of the province :—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.	Average actual, June 1902.	Average normal, June.
	Inches.	Inches.	Inches.			
South-East Punjab	2·73	2·40	+0·33	+ 14	4·2	2·9
South Punjab	2·40	1·62	+0·78	+ 48	3·4	2·1
Central Punjab	2·68	1·58	+1·10	+ 70	3·9	2·2
Punjab Submontane	2·23	2·78	−0·55	− 20	3·6	3·1
Punjab Hills	3·54	4·78	−1·24	− 26	7·6	6·9
North Punjab	2·30	1·11	+1·19	+107	3·2	1·9
West Punjab	1·35	0·69	+0·66	+ 96	2·6	1·3

The preceding table shows that the rainfall of the month was above the normal in all, except the submontane and hill, divisions. The excess was small in amount, except in the northern and central divisions, in both of of which it was upwards of an inch. The deficiency averaged 26 per cent. in the hills and 20 per cent. in the submontane division.

Kashmir received frequent rain during the last three weeks of the month. The days of most general rain were the 8th, 9th, 19th, 20th, 21st and 24th. The falls were, on the whole, heaviest on the 19th, 20th, and 24th, on which days the following noteworthy amounts were recorded :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
JUMMOO.	Bhimber	19th June	3·00
JUMMOO.	Meerpore	,,	2·97
JUMMOO.	Udumpur	20th	3·00
JUMMOO.	Riasi	24th	2·93
JUMMOO.	Rampore Rajauri	,,	2·42

The total rainfall of the month varied between 3 and 11 inches and was, so far as can be judged from the data of the few stations for which normals are available, more or less considerably in excess in the valley, and normal or in defect, on the higher elevations.

The following data for five stations illustrate these features of the rainfall distribution :—

STATION.	RAINFALL.			
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ramban	5·60	2·34	+3·26	+139
Kishtwar	3·63	2·39	+1·24	+ 52
Srinagar	3·01	1·77	+1·24	+ 70
Leh	0·17	0·21	−0·04	− 19
Dras	0·06	0·71	−0·65	− 92

Baluchistan obtained showers, chiefly between the 17th and 21st and the 25th and 27th. These showers were in most cases moderate or light, the only heavy falls recorded being as follows:—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
THAL CHOTIALI	Sunari	20th June	2·70
	Harnai	,, ,,	1·60
	Spintangi	,, ,,	1·10
	Harani	21st ,,	1·25
	Sibi Hospital	26th ,,	1·02

The total fall of the month was in slight excess of the normal.

Rajputana received rain mainly during two periods. The first period was from the 7th to the 13th, the rainfall during which was restricted to the eastern states and was light and sporadic. The second period was from the 18th to the 26th or 27th when rainfall was fairly general and was due to a strong influx of humid winds into Upper India, the result of the unusually steep gradients obtaining at the time. The burst was heaviest in the Jodhpur and Jaipur districts and lightest in Dholpur, Karauli and Udaipur.

The rainfall of the month was irregularly distributed and was above the normal in the Jaisalmer, Jodhpur and Alwar states, and was more or less in defect in the remaining states. The deficiency was greatest, both absolutely and relatively to the normal, in the Jhalawar State which was rainless throughout the month.

The following gives comparative data for the twelve states:—

STATE.	RAINFALL.			
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jaisalmer	2·09	0·67	+1·42	+212
Jodhpur	1·79	1·46	+0·33	+ 23
Jaipur	1·94	2·34	−0·40	− 17
Alwar	2·62	2·42	+0·20	+ 8
Bhartpur	1·73	2·84	−1·11	− 39
Dholpur	0·96	2·89	−1·93	− 67
Karauli	0·94	3·87	−2·93	− 76
Kotah	0·99	5·42	−4·43	− 82
Jhalawar	0	5·38	−5·38	−100
Ajmere-Merwara	1·43	2·60	−1·17	− 45
Udaipur	0·69	4·01	−3 32	− 83
Sirohi	1·00	3·71	−2·71	− 73

Central India obtained rain during the same two periods as the Central Provinces, viz., from the 7th to the 14th and again from the 22nd to the end of the month. The daily falls were generally light to moderate in amount, and the rainfall of the month was hence generally in considerable to large defect.

The following gives comparative data for the more important states:—

STATE.	RAINFALL.			
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Indore	2·08	6·29	−4·21	−67
Rutlam	0·32	5·22	−4·90	−94
Bhopal Agency	0·76	8·32	−7·56	−91
Gwalior	1·38	6·01	−4·63	−77
Rewah	0·86	7·07	−6·21	−88
Bundelkhand	0·69	7·75	−7·06	−91
Nagode	0·70	5·93	−5·23	−88
Maihar	0·97	7·20	−6·23	−87

Weather was fine with a few local thundershowers over the Central Provinces and Berar during the first six days of the month. Fairly general but light rain due to a very feeble influx of humid monsoon winds began on the 7th and continued until the 14th, when a break set in which lasted until the 22nd. Showers were again received during the last eight days of the month but the amounts were generally small. The rainfall of the month was hence light and in general defect, the deficiency being greatest in amount, both absolutely and relatively to the normal, in the eastern districts which obtained only 16 per cent. of their normal fall.

The following gives a summary of the rainfall data given in the provincial rainfall statement:—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.	Average actual, June 1902.	Average normal, June.
	Inches.	Inches.	Inches.			
Berar	1·54	5·67	−4·13	−73	3·3	8·2
Central Provinces, West.	1·34	7·13	−5·79	−81	3·3	8·7
Central Provinces, Central.	1·41	7·79	−6·38	−82	3·1	9·0
Central Provinces, East.	1·43	8·76	−7·33	−84	3·6	9·6

Mysore received on the whole favourable rain during the month. The chief periods during which more or less rain fell daily over the whole or the greater part of the province were the 1st to the 4th, the 9th to the 16th or 17th and the 28th to the 30th. The rainfall was heavy in the Shimoga and Kadur districts on the 13th on which day the following large falls were registered :—

District.	Station.	Rainfall during 24 hours preceding 8 A. M. of 13th June 1902.
		Inches.
Shimoga	Nagar	6·15
Kadur	Sringeri	3·94
Shimoga	Tirthahalli	3·38
Shimoga	Kumsi	3·30
Shimoga	Sagar	3·00
Kadur	Mudgere	3·00
Kadur	Koppa	2·28

The following gives comparative data for the eight districts of the State :—

District.	Rainfall.			
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Bangalore	1·16	2·26	—1·10	—49
Kolar	2·30	2·31	—0·01	0
Tumkur	1·51	2·17	—0·66	—30
Mysore	1·54	1·54	0	0
Hassan	3·22	4·16	—0·94	—23
Shimoga	9·38	13·03	—3·65	—28
Kadur	7·02	10·44	—3·42	—33
Chitaldrug	1·42	1·56	—0·14	— 9

The data show that the rainfall of the month was normal in the Mysore and Kolar districts and in defect over the remainder of the State. The deficiency was most pronounced in the Shimoga and Kadur districts, where it averaged about 3·50 inches.

Showers accompanying thunderstorms occurred in the Konkan during the first six days of the month but were generally light and local. The monsoon rains proper, commenced in North Kanara and Ratnagiri on the 7th, in Kolaba on the 11th, in Thana on the 12th, in Surat and Broach on the 13th, in Kathiawar on the 14th and in Sind on the 15th. This first burst of rain was not, however, so heavy as ordinarily occurs, chiefly owing to the diversion of the bulk of the current to the cyclonic storm in the north-east of the Arabian Sea.

The following table giving average data of the rainfall in the coast districts from the 7th to the 17th shows the character of the burst :—

District.	Average actual rainfall during 24 hours preceding 8 A. M. of											
	7th June.	8th June.	9th June.	10th June.	11th June.	12th June.	13th June.	14th June.	15th June.	16th June.	17th June.	Total rainfall of period.
North Kanara	1·30	1·18	1·86	2·70	1·56	2·86	4·14	2·95	3·13	0·57	0·25	22·50
Savantvadi	0·63	0·78	3·27	4·38	1·13	1·96	5·70	2·0	4·50	0·73	0·22	25·54
Ratnagiri	1·72	0·43	1·32	2·09	3·97	3·02	3·47	1·07	1·80	0·80	0·27	19·96
Kolaba	0·23	0·02	0·08	0·13	1·05	1·59	1·81	1·05	0·61	0·69	0·13	7·39
Thana	0·11	0·02	1·19	0·27	0·22	0·81	1·14	0·81	0·83	0·11	0·07	5·58

Daily falls exceeding 5 inches were recorded at the following stations during this period :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ratnagiri	Devgod	7th June	5·80
North-Kanara	Ankola	" "	5·10
Ratnagiri	Malaon	9th "	5·06
North-Kanara	Kumta	" "	5·05
Savantvadi	Kudal	10th "	5·48
Ratnagiri	Guhagar	11th "	6·39
Ratnagiri	Rajapur	" "	5·65
Ratnagiri	Dopoli	" "	5·48
Ratnagiri	Khed	" "	5·30
North-Kanara	Kumta	12th "	8·19
Ratnagiri	Dopoli	" "	7·58
Ratnagiri	Mandangad	" "	5·53
Ratnagiri	Guhagar	" "	5·07
Savantvadi	Savantvadi	13th "	7·10
North-Kanara	Karwar	" "	6·77
North-Kanara	Kumta	" "	6·18
North-Kanara	Ankola	" "	5·73
Ratnagiri	Rajapur	" "	5·51
Savantvadi	Banda	" "	5·35
North-Kanara	Bhatkal	14th "	5·80
North-Kanara	Kumta	15th "	6·90
Ratnagiri	Vengurla	" "	6·10

The dispersion of the storm on the 17th was followed by a break in the rains which lasted until the 29th, during which light and unsteady winds obtained on the Bombay Coast and the rainfall was light and sporadic.

The total rainfall of the month was 10·54, or 40 per cent. below the normal on the average of the whole division.

The Bombay Deccan and Khandesh received numerous thundershowers during the first seven days of the mon h

and moderate daily rain from the 8th to the 15th. Only local showers occurred during the remainder of the month.

The rainfall of the month was below the normal throughout these divisions, as is shown by the following data for the six collectorates :—

DISTRICT.	RAINFALL.			
	Average actual, June.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Satara	6·28	8·76	—2·48	—28
Sholapur	3·84	4·11	—0·27	— 7
Poona	4·34	6·91	—2·57	—37
Ahmednagar	2·58	4·61	—2·03	—44
Nasik	3·14	7·83	—4·69	—60
Khandesh	2·35	4·84	—2·49	—51

Gujarat and Kathiawar received light to moderate rain from the 13th to the 15th and again on the 19th and occasional thundershowers during the rest of the month. The rainfall of the month was scanty and in serious defect in both these areas.

There were three periods of precipitation in Sind, *viz.*, the 15th to the 18th, the 21st, 25th and 26th. The rainfall during the first period was associated with the first storm of the month and was heavy in the Kurrachee district and moderate in the Hyderabad, Larkhana and Thar districts.

The following gives the heaviest falls recorded during this period :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
KURRACHEE	Jerruck	15th June	1·30
	Kurrachee	16th „	2·90
	Jerruck	„ „	1·10
	Kurrachee	17th „	7·17
LARKHANA	Sehwan	„ „	1·70
	Mehar	„ „	1·06
KURRACHEE	Kurrachee	18th „	1·90
THAR AND PARKAR	Umarkot	„ „	1·78
HYDERABAD	Hala	„ „	1·17

During the second and third periods the rainfall was due to an influx of humid winds across the Sind coast and was neither so general nor so heavy as during the first period.

The following data for the six districts of the division show fully the unusual character of the precipitation of the month :—

DISTRICT.	RAINFALL.			
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Kurrachee	4·25	0·75	+3·50	+467
Hyderabad	2·38	0·36	+2·02	+561
Larkhana	1·65	0·21	+1·44	+686
Sukkur	1·06	0·16	+0·90	+563
Upper Sind Frontier	0·27	0·10	+0·17	+170
Thar and Parkar	1·29	0·39	+0·90	+231

The rainfall was, however, very unequally distributed, as is shown by the following data :—

STATION.	RAINFALL.			
	Average Actual, June 1902.	Average Normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Kurrachee	12·22	0·43	+11·79	+2742
Tata	0·83	0·88	—0·05	—6
Jerruck	3·28	0·55	+2·73	+496
Shahbandar	0·65	1·13	—0·48	—42

The following table gives comparative data of the rainfall of the month for the six divisions of the Bombay Presidency :—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June 1902.	Percentage variation from normal.	Average actual, June 1902.	Average normal, June.
	Inches.	Inches.	Inches.			
Konkan	16·06	26·60	—10·54	—40	12·3	18·6
Bombay Deccan	5·33	6·01	—0·64	— 11	8·1	8·8
Khandesh	2·65	5·70	—3·05	— 54	4·4	8·0
Gujarat	1·40	6·86	— 5·46	— 80	3·2	7·0
Kathiawar and Cutch	0·72	4·21	— 3·49	— 83	1·8	4·5
Sind	2·31	0·41	+ 1·90	+463	2·3	0·6

The Malabar Coast districts received light to moderate showers daily from the 1st to the 7th. Moderate to heavy monsoon rain began to fall on the 8th and continued until the 15th.

The following gives details of this burst of rain :—

DISTRICT.	AVERAGE ACTUAL RAINFALL DURING 24 HOURS PRECEDING 8 A M. OF								
	7th June.	8th June.	9th June.	10th June.	11th June.	12th June.	13th June.	14th June.	15th June.
Malabar . .	0·21	1·25	2·38	1·19	0·96	0·70	2·27	1·43	1·06
South Canara .	1·46	1·10	1·98	2·59	2·50	1·33	2·96	3·98	3·02

The data show that the burst of rain initiating the monsoon on the Malabar Coast was not so heavy as usual. The heaviest falls in 24 hours were 6·27 inches at Vayittiri on the 13th and 5·36 inches at Baindur on the 14th.

Fine weather with local showers set in on the 16th and lasted until the 29th when moderate rain due to a fresh advance of humid winds recommenced. The total rainfall of the month averaged 16·09 inches in the Malabar district and 29·27 inches in the South Canara district and was 16·54 and 10·37 inches below the normal in these districts, respectively.

The South and South-Central divisions of Madras received local showers occasionally during the month, (heaviest and most general on the 20th) and the rainfall was normal in the former, and in slight defect in the latter, division.

The Deccan districts obtained frequent showers, which gave fairly general rain on the 1st, 4th, 11th, 13th, 14th, 15th, 20th and 21st and from the 28th to the 30th. The rainfall of the month was normal in the Kurnool district and in moderate excess in the Cuddapah (+38 per cent.), Bellary (+46 per cent.) and Anantapur (+31 per cent.) districts.

The east coast districts of Madras received fairly general rain from the 11th to 13th, 18th to the 21st, and again on the 23rd and 28th and some local showers in the intervals between these periods but the rainfall of the month was more or less in defect in all districts except Nellore. The defect was most marked in actual amount in the Ganjam and Godavari districts and relatively to the normal in the Madras district which received only 19 per cent. of its normal quantity.

The following gives comparative data for the 22 collectorates of the Presidency :—

District.	RAINFALL.			
	Average actual, June 1902.	Average normal, June.	Variation of actual from normal, June. 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam . . .	3·16	5·72	−2·56	−45
Vizagapatam . . .	3·41	4·69	−1·28	−27
Godavari . . .	1·53	4·65	−3·12	−67
Kistna	2·96	3·94	−0·98	−25
Nellore	2·16	1·63	+0·53	+33
Chingleput . . .	0·82	2·11	−1·29	−61
Madras . . .	0·39	2·08	−1·69	−81
North Arcot . . .	1·90	2·72	−0·82	−30
South Arcot . . .	1·02	1·95	−0·93	−48
Tanjore . . .	1·84	1·39	+0·45	+32
Trichinopoly . . .	2·07	1·40	+0·67	+48
Madura . . .	1·43	1·05	+0·38	+36
Tinnevelly . . .	0·43	0·87	−0·44	−51
Malabar . . .	16·09	32·63	−16·54	−51
South Canara . .	29·27	39·64	−10.37	−26
Salem	2·28	2·07	+0·21	+10
Coimbatore . . .	0·65	1·59	−0·94	−59
Nilgiris . . .	5·15	10·19	−5·04	−49
Cuddapah . . .	3·15	2·29	+0·86	+38
Anantapur . . .	3·07	2·35	+0·72	+31
Bellary	3·78	2·59	+1·19	+46
Kurnool . . .	2·92	2·95	−0·03	−1

HEM RAJ.

Appendix.

The following report describing the damage caused by the Kurrachee cyclone has been kindly furnished by the Collector, Kurrachee.

"The town of Kurrachee itself suffered greatly not only from the wind and rain but also from the sea water, which, the tides being high, flooded all the low lying portions of the town. The fishing village of Khudda and the villages on the islands of Baba and Bhit were almost entirely destroyed and the residents were obliged to find shelter in the School buildings and public halls of the town and in the Port Trust export sheds at Keamari. A large number of the Baba people must have been drowned but for the courageous action of the native tindal of the Port Trust vessel "Jumbo," who took them off the island when all the boats had gone and at no small risk to himself and crew conveyed them to Keamari.

The damage done to municipal property, such as roads, bridges and buildings, is probably not far short of a lakh and-a-half of rupees: the Port Trust suffered to the extent of about one and three quarter lakhs exclusive of the value of damaged merchandise which it may possibly have to pay for when claims are made.

The Salt works at Maurypur were, I am given to understand, completely wrecked while Manora was devastated. The Forts were considerably injured and two of the big guns dismantled, while the residential quarters and other buildings, which by reason of their low situation were exposed to the full fury of the storm, were mostly destroyed and residents had to seek shelter on the heights. But what I look upon as the most serious feature in the case was the submersion of part of the low lying spit of the land which forms one side of the harbour. A large slice of the seaward side of this spit of land was removed bodily and with a very little more of the hurricane the sea would have rushed into the harbour from that direction, and have ruined it, the loss of the harbour would have been a national loss and the rendering of it secure in the future is a matter deserving very earnest attention at the hands of experts.

Up to date I have received information of only nine lives lost in Kurrachee through the storm, five persons having been drowned, one killed by the fall of a tree and three by the fall of a house.

In the district the Shahbandar and Ghorabari talukas suffered most. In the former, 57 dehs were flooded by the sea, lately planted rice was destroyed and 3,000 sheep, 75 buffaloes and 115 head of cattle destroyed, but fortunately there was no loss of life as the people profiting by experience bolted towards the higher lying lands to the north as soon as the storm commenced. For some days they endured considerable hardship as they were homeless, and found it difficult to procure fresh water. The Assistant Collector in charge of the division is now in the Taluka endeavouring to mitigate their troubles by distributing grain and money already collected on their behalf.

From Ghorabari comes a report of considerable damage done to rice seedlings, stored grain, houses and cattle, but I am inclined to think that the estimate sent to me which puts down the loss at 1½ lakhs of rupees is somewhat exaggerated; but it is clear that cattle in large numbers have been lost. The town of Keti Bandar narrowly escaped destruction and was saved only by constant supervision and repairing of the bunds within which the town is built; one of the bunds was breached by a herd of terrified buffaloes numbering about 300 which rushed into the town for shelter.

In Jatti Taluka two dehs were flooded from the sea and damage to the rice seedlings followed. Other talukas have not reported any casualties or losses.

I fear that it will be necessary to grant very large postponement of payment of arrears of revenue and taccavi in the southern taluka and at the same time to make large grants of taccavi even to those who are already defaulters. The men who have lost their boats, I am unable to help for the present."

TABLE I.—Abstract of Observations taken at 8 A.M. at 224 Stations in India, Burma, etc., in June, 1902.

Table

Abstract of Observations taken at 8 A.M. at 224 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.				−·001								86·4	+0·5	76·4	+0·6	81·4	+0·6	10·1					18·8
												Observations for twelve days only.												
1	Tenasserim and Bay Islands.	Car Nicobar	25									81·1	86·6	+0·6	77·6*	−0·3	82·1*	+0·2	9·0	90·2	1st	73·6	6th	16·6
		Port Blair	61	29·779	+·022	29·771	29·848	4th	29·685	6th	·163	79·6	86·7	+1·0	75·4	+2·3	81·1	+1·7	11·3	91·1	15th & 19th.	72·4	4th	18·7
		Mergui	96	29·771	+·001	29·799	29·841	18th	29·690	6th	·151	78·2	85·1	+0·3	74·9	+0·2	80·0	+0·3	10·2	89·2	4 days	73·0	21st & 23rd.	16·2
		Tavoy	26	29·836	−·002	29·793	29·933	18th	29·741	6th	·192	79·1	85·1	+0·5	75·4	+0·6	80·3	+0·6	9·7	94·5	9th	73·3	8th	21·2
		Moulmein†	94	29·714	−·008	29·745	29·815	18th	29·607	6th	·208	83·6	86·9	+0·4	76·6	+0·1	81·8	+0·3	10·3	93·1	4th	74·4	4 days	18·7
2	Lower Burma	Rangoon	41	29·739	−·018	29·717	29·826	19th	29·628	11th	·198	80·3	87·2	+0·9	77·3	+1·0	82·3	+1·0	9·9	92·7	3rd	71·7	24th	21·0
		Bassein	27	29·753	+·004	29·714	29·847	19th	29·642	11th	·205	81·3	85·4	−0·2	77·6	+1·2	81·5	+0·5	7·8	88·4	3 days	74·2	3 days	14·2
		Diamond Island	41	29·740	−·002	29·716	29·829	19th	29·623	11th	·206	80·6	86·5	+0·5	77·9	−0·2	82·2	+0·2	8·6	90·9	6th	74·2	30th	16·7
5	Arakan	Akyab	20	29·694	−·007	29·656	29·815	1st	29·531	13th	·284	81·6	88·3	?	74·5	?	81·4	?	13·8	96·6	3rd	70·6	1st & 9th.	26·0
3	Central Burma	Toungoo	183	29·589	−·002	29·714	29·693	19th	29·488	24th	·205													
	II.—Burma Inland				−·001								93·2	+1·2	76·9	+0·3	85·1	+0·8	16·3					26·7
3	Central Burma.	Thayetmyo	130	29·620	?	29·694	29·721	26th	29·529	11th	·192	82·3	92·7	+1·3	78·2	+1·4	85·5	+1·4	14·5	101·5	3rd	75·6	15th & 17th.	25·9
4	Upper Burma	Minbu	165	29·557	−·009	29·669	29·655	26th	29·471	24th	·184	82·8	94·7	+1·7	78·6	+0·8	86·7	+1·3	16·1	104·6	4th	76·1	18th	28·5
		Yamethin	657	29·087	−·006	29·690	29·178	26th	28·991	24th	·187	81·4	93·6	+1·7	75·6	+0·3	84·6	+1·0	18·0	102·3	3rd	71·2	22nd	31·1
		Mandalay	250	29·482	+·007	29·680	29·574	1st	29·380	24th	·194	84·6	96·4	+1·4	78·9	+0·4	87·7	+0·9	17·5	100·1	25th	75·3	8th	24·8
		Kindat	377	29·318	+·011	29·648	29·449	2nd	29·183	14th	·266	80·1	90·8	+0·3	75·5	−0·5	83·2	0	15·3	97·3	4th	72·3	30th	25·0
		Bhamo	381	29·320	−·007	29·655	29·450	2nd	29·226	14th	·224	79·1	91·0	+0·5	74·4	−0·5	82·7	0	16·6	97·0	6th & 10th	72·1	20th	24·9
4(a)	Burma Hill Stations.	Maymyo	...	26·302			26·386	18th	26·208	12th	·178	72·6	79·9		66·8		73·4		13·1	83·0	3rd, 5th & 7th.	64·8	4 days	18·2
		Lashio	...	26·975	−·017		27·066	2nd	26·893	24th	·173	75·6	87·3	+1·8	69·2	−0·1	78·3	+0·9	18·1	93·5	10th	56·5	1st	37·0
	III.—Assam				−·007								86·3	−1·5	75·0	−0·9	80·7	−1·2	11·3					22·4
7	Surma	Silchar	104	29·585	−·002	29·644	29·731	1st	29·424	15th	·307	79·5	88·7	−0·7	75·6	−0·6	82·2	−0·7	13·1	97·6	8th	71·3	1st	26·3
9	Brahmaputra	Sibsagar	333	29·341	−·010	29·630	29·522	2nd	29·183	14th	·339	78·5	86·3	−3·6	75·7	−0·7	81·0	−1·9	10·6	93·2	11th	72·0	16th	21·2
		Dhubri	115	29·528	−·008	29·598	29·700	2nd	29·352	14th	·348	78·3	84·8	−0·9	75·1	−1·3	80·0	−1·1	9·7	90·7	13th	70·2	20th	20·5
		Tezpur	252	29·405		29·617	29·567	2nd	29·251	14th	·316	78·6	86·4		76·0		81·2		10·4	91·6	5th	72·9	3 days	18·7
		Dibrugarh	353	29·342		29·656	29·511	2nd	29·208	24th	·303	76·7	85·1		72·6		78·9		12·5	94·2	11th	69·0	19th & 20th.	25·2
	IV.—Bengal and Orissa				+·006								91·4	+0·8	78·1	−0·1	84·8	+0·4	13·3					25·9
6	East Bengal	Chittagong	87	29·597	0	29·632	29·749	1st	29·426	13th	·323	81·0	87·0*	+0·1*	76·0	−0·6	81·5*	−0·1	11·0	90·5	7th & 12th.	70·1	30th	20·4
		Noakhali	43	29·622		29·611	29·761	2nd	29·416	14th	·345	82·2	87·1		77·4		82·3		9·7	90·7	12th	70·4	30th	20·3
		Comilla	36	29·627		29·611	29·764	2nd	29·386	14th	·378	80·8	88·8		76·7		82·8		12·1	94·3	12th	71·8	30th	22·5
		Sirajganj	49	29·584		29·583	29·759	2nd	29·405	14th	·354	79·6	88·1		76·6		82·4		11·5	93·3	24th & 25th.	70·7	15th	22·6
		Narayanganj	26	29·625	+·011	29·599	29·783	2nd	29·413	14th	·370	81·6	89·1	?	78·3	0	83·7	?	10·8	92·6	22nd	71·7	2nd	20·9
		Barisal	13	29·625	?	29·583	29·763	2nd	29·454	14th	·309	82·3	88·5	−0·2	77·6	−0·6	83·1	−0·4	10·9	93·8	24th	71·1	5th	22·7
		Mymensingh	59	29·585	−·017	29·595	29·746	2nd	29·391	14th	·355	80·6	87·1	−0·1	76·6	−0·3	81·9	−0·2	10·5	92·7	25th	72·6	1st	20·1
10	Deltaic Bengal	Faridpur	46	29·605		29·599	29·758	2nd	29·428	14th	·330	81·6	89·5		77·1		83·3		12·4	93·3	24th & 25th.	71·9	1st	21·4
		Jessore	33	29·594	+·005	29·573	29·749	2nd	29·435	14th	·314	82·9	91·4	−0·1	78·9	+0·1	85·2	0	12·5	95·5	24th & 25th.	71·2	1st	23·3
		Calcutta	21	29·603	+·017	29·570	29·757	2nd	29·446	16th	·311	84·0	92·6	+1·5	78·7	+0·2	85·6	+0·9	13·9	97·7	24th	70·6	5th	27·1
		Saugor Island	25	29·594	+·011	29·563	29·738	2nd	29·455	16th	·283	86·1	91·6	+1·2	82·0	+0·3	86·8	+0·8	9·6	93·9	2 days	74·1	16th	19·8
		Krishnagar	47	29·582		29·577	29·744	2nd	29·439	14th & 15th.	·305	82·9	93·0		77·5		85·3		15·5	99·2	24th	70·2	1st	29·0
		Midnapore	149	29·465		29·559	29·593	2nd	29·318	16th	·275	84·5	95·5		78·9		87·2		16·6	101·3	20th	72·2	6th	29·1

* Mean of 29 days.

† Observations of 29 days.

I.

in India, Burma, etc., in June, 1902.

WIND DIRECTION. Number of Winds from									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.		Mean cloud amount.	RAINFALL.									Heaviest rainfall during month.	STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th June 1902.	Normal rainfall for period, 1st May to 30th June.	Variation from normal of period, 1st May to 30th June.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				22·68	28·84	−6·16					I.—Burma Coast and Bay Islands.		
															Obser	vations	for	twelve	days	only.							Car Nicobar	TENASSERIM AND BAY ISLANDS.	1
					3	14	12	1	S 62° W	12·6	14·1	10·0	+ 41	89	·951	7·3	25			21·15	18·65	+ 2·50	38·71	35·74	+2·97	4·32	Port Blair .		
19	2				4	4		1	S 40° W	2·0	1·8	1·9	— 5	91	·907	5·6	21	24·20	−3·20	21·66	30·29	− 8·63	47·93	49·55	−1·62	3·66	Mergui,		
29						1			S 45° W	1·9				93	·899	6·1	27	25·80	+1·20	37·25	39·88	− 2·63	67·48	65·93	+1·55	3·98	Tavoy,		
2				2	8	16	1		S 27° W	3·5	3·9	3·4	+ 15	89	·888	8·2	23	26·10	−3·10	26·84	36·38	− 9·54	54·90	55·78	−0·88	4·85	Moulmein,		
1			1	4	9	12	3		S 21° W	8·2	6·9	5·3	+ 30	90	·928	7·6		24·80	?	?	17·52	?	?	?	?	?	Rangoon .	LOWER BURMA.	2
8			1	3	6	8		4	S 24° W	4·8		4·0	+ 20	92	·955	6·9	20	24·50	−4·50	15·06	23·42	− 8·36	34·73	23·72	+1·01	3·13	Bassein,		
1		1			2	12	11	3	S 70° W	10·2	10·2	8·5	+ 20	84	·925	7·3	22	21·73	+0·27	18·74	23·17	− 4·43	32·65	33·60	−0·95	5·34	Diamond Island.		
	1	3	3	13	6	4			S 38° E	2·5	2·4	3·9	— 38	92	·969	8·4	21	24·40	−3·40	30·41	44·79	−14·38	50·38	56·67	−6·29	3·53	Akyab .	ARAKAN.	5
4				15	9	2			S 23° E	6·0	5·9	4·8	+ 23	87	·946	8·6	22	20·80	−1·20	10·35	14·15	− 3·80	18·32	20·43	−2·11	1·91	Toungoo .	CENTRAL BURMA.	3
																				6·37	7·93	−1·56					II.—Burma Inland.		
				9	19	1	1		S 10° E	8·4		8·2	+ 2	81	·892	5·9	10	13·90	−3·90	4·83	6·34	− 1·51	7·88	10·47	− 2·59	1·11	Thayetmyo.	CENTRAL BURMA.	3
3				26	1				S 43° E	8·3	9·9			79	·890	6·2	5	9·10	−4·10	3·13	4·54	− 1·41	5·12	10·55	− 5·43	1·12	Minbu .	UPPER BURMA.	4
3				12	15				S 19° E	7·8	8·2			81	·870	7·9	8	7·40	+0·60	3·98	4·26	− 0·28	7·91	11·02	− 3·11	2·05	Yamethin,		
	1			3	22	3		1	S 2° W	9·9	10·0			75	·885	4·9	5	6·50	−1·50	2·40	5·79	− 3·39	7·24	11·34	− 4·10	1·38	Mandalay,		
21	1	1	1	2	3	1			S 36° E	1·0	1·0			89	·923	7·8	12	15·30	− 3·30	8·54	12·93	− 4·39	14·05	19·27	− 5·22	1·98	Kindat,		
10	3	3		1		3	4	6	N 49° W	2·0	2·3			91	·894	6·4	18	19·10	−1·10	15·35	13·72	+ 1·63	26·79	20·18	+ 6·61	2·73	Bhamo,		
8		3		5		13	1		S 21° W	4·0				82	·661	6·4	12	11·80	+0·20	9·38	7·20	+ 2·18	16·37	17·59	− 1·22	2·40	Maymyo .	BURMA HILL STATIONS.	4(a)
	4	7	2	3	8	4	1	1	S 54° E	3·8				83	·743	7·5	15			9·11	10·70	− 1·59	16·43	16·83	− 0·40	1·69	Lashio,		
																				18·50	19·58	+ 0·90					III.—Assam.		
28		2							N 45° E	1·6	2·8	3·1	− 10	90	·919	9·3	25	21·10	+3·90	27·62	21·99	+ 5·63	39·39	39·23	+ 0·16	4·15	Silchar .	SURMA.	7
8	3	15		1		2		1	N 37° E	2·1	1·9	2·6	− 27	94	·923	9·5	15	16·70	−1·70	8·18	13·59	− 5·41	14·78	26·21	−11·43	1·72	Sibsagar .	BRAHMAPUTRA.	8
1	3	11	8	3	1	3			N 71° E	6·4	7·6	4·9	+ 55	90	·881	8·7	17	18·10	−1·10	25·64	23·17	+ 2·47	44·41	38·60	+ 5·81	5·45	Dhubri,		
4		6	14		2	1	1	2	N 79° E	4·6	4·9			90	·886	7·4	13	16·00	−3·00	14·41			21·52			3·15	Tezpur.		
	6	9	5	4				6	N 36° E	2·1	2·0			92	·841	5·8	18	18·10	−0·10	16·66			28·68			3·74	Dibrugarh.		
																				13·03	13·55	−0·51					IV.—Bengal and Orissa.		
	1	3	4	11	6	2	1	2	S 42° E	7·2	7·1	6·9	+ 3	87	·924	7·7	22	16·74	+5·26	27·85	21·76	+ 6·09	40·62	32·07	+ 8·55	5·94	Chittagong.	EAST BENGAL	6
		1	8	7	10	3	1		S 39° E	4·6	4·3			87	·961	5·8	18	18·39	−0·39	25·08	23·29	+ 1·79	41·16	33·35	+ 7·81	3·62	Noakhali.		
7			5	5	12	1			S 27° E	5·1				89	·934	7·0	16	17·39	−1·39	19·94	17·91	+ 2·03	31·44	28·92	+ 2·52	7·02	Comilla.		
12		1	4	5	6	1		1	S 38° E	2·6	2·7			94	·955	8·7	14	13·32	+0·68	21·54	11·57	+ 9·97	29·88	19·52	+10·36	4·15	Sirajganj.		
4	1	1	7	6	8	2		1	S 42° E	6·8		7·2	− 6	91	·986	9·2	14	15·39	−1·39	18·22	12·64	+ 5·58	28·23	22·08	+ 6·20	5·21	Narayanganj		
7	2	4	1	7	7	1		1	S 45° E	4·3				90	·993	8·3	18	16·52	+1·48	27·05	15·02	+12·03	42·21	24·21	+18·00	5·86	Barisal.		
9		1	7	11	2				S 61° E	3·4	3·1			90	·947	7·9	17	18·19	−1·19	29·46	17·34	+12·12	45·88	30·30	+15·58	7·40	Mymensingh		
11			3	5	7	3	1		S 13° E	5·4	4·6			90	·986	6·4	19	14·28	+4·72	21·01	12·75	+ 8·26	30·53	21·05	+ 9·48	4·02	Faridpur .	DELTAIC BENGAL.	10
16		1	1	7	3	1		1	S 36° E	1·6		4·9	− 67	88	·992	8·1	12	14·55	−2·55	7·04	12·56	− 5·52	20·34	20·50	− 0·16	1·64	Jessore.		
1	1	1	3	5	11	7	1		S 3° E	5·8		6·2	− 6	84	·992	8·3	13	12·88	+0·12	5·47	11·35	− 5·88	14·66	17·03	− 2·37	1·04	Calcutta.		
	1	1	2	2	14	9		1	S 9° W	17·8		14·6	+ 22	83	1·034	8·2	8	12·10	−4·10	5·87	10·02	− 4·15	9·87	15·11	− 5·24	1·77	Saugor Island.		
1	1	2	5	6	11	1	2	1	S 28° E	4·9	5·4			85	·962	5·9	9	12·19	−3·1	5·66	9·88	− 4·22	11·80	16·43	− 4·63	1·74	Krishnagar.		
3	3	3		2	18	1			S 11° E	4·8	4·2			84	·988	3·7*	9	12·00	−3·0	5·15	10·51	− 5·36	12·37	16·20	− 3·83	1·45	Midnapur.		

Table

Abstract of Observations taken at 8 A.M. at 224 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal	Bankura .	298	29·288		29·533	29·423	2nd	29·151	16th	·272	84·5	97·8		79·5		88·7		18·3	106·1	22nd	69·4	4th	36·7
		Raniganj .	334	29·280		29·559	29·432	2nd	29·139	15th	·293	83·3	96·9		78·7		87·8		18·2	104·2	30th	69·9	4th	34·3
		Burdwan .	99	29·517	+·009	29·563	29·665	2nd	29·368	15th	·297	83·4	94·6	+0·8	78·8	−0·5	86·7	+0·2	15·8	100·4	24th & 25th.	70·3	5th	30·1
		Naya Dumka	489	29·120		29·561	29·272	2nd	28·971	15th	·301	84·1	95·5		78·8†		87·2†		16·7	105·5	22nd	69·4	4th	36·1
		Berhampore	67	29·553	+·008	29·568	29·711	2nd	29·398	15th	·313	82·3	93·2	+0·8	78·2	−0·3	85·7	+0·3	15·0	100·3	25th	72·3	1st	28·0
		Rampur Boalia, Malda .	72	29·522?		29·545?	29·708	2nd	29·380	14th & 15th,	·328	82·3	92·2		77·9		85·0		14·3	100·1	21st	70·5	4th	29·6
		Bogra .	61	29·558	−·003	29·571	29·730	2nd	29·398	14th	·332	80·6	89·6	−0·2	77·0	−0·2	83·3	−0·2	12·6	95·2	3 days	72·2	30th	23·0
12	North Bengal .	Dinajpur .	123	29·480	?	29·557	29·667	2nd	29·328	14th	·339	80·2	89·6	+0·1	76·9	−0·6	83·3	−0·3	12·7	97·3	25th	72·5	1st	24·8
		Rangpur .	123	29·523		29·600	29·708	2nd	29·360	14th	·346	80·0	88·8		?		?		?	95·2	25th	?	?	?
		Jalpaiguri .	284	29·359	−·009	29·602	29·563	2nd	29·195	14th	·368	78·5	87·6	−0·3	75·5	+0·3	81·6	0	12·1	93·4	25th	72·1	20th	21·3
		Cooch Behar	156	29·491		29·603	29·680	2nd	29·325	14th	·355	79·1	87·5		76·0		81·8		11·5	93·4	8th	71·1	20th	22·3
17	North Bihar .	Purnea .	125	29·487	−·002	29·566	29·681	2nd	29·347	15th	·334	81·2	92·6	+0·5	77·9†	+0·6†	85·3†	+0·6	14·7	97·3	9th & 25th.	73·7	4th	23·6
14	Orissa . .	Balasore .	48	29·573	+·010	29·565	29·716	2nd	29·455	16th	·261	84·9	94·1	+2·5	79·2	+0·6	83·8	+1·6	15·2	100·0	17th	71·8	2nd	28·2
		False Point.	21	29·621	+·020	29·584	29·762	2nd	29·504	12th	·258	84·7	90·2	−0·1?	79·9	−0·2	85·1	−0·2?	10·3	96·5	24th	72·1	23rd	24·4
		Cuttack .	80	29·550	+·018	29·572	29·668	2nd	29·430	12th	·238	84·3	99·7	+4·2	79·9	−0·2	89·8	+2·0	19·8	110·5	6th	74·2	7th	36·3
		Puri . .	24	29·622		29·584	29·757	2nd	29·518	12th	·239	84·3	89·7		80·3		85·0		9·4	98·7	17th	74·6	7th	24·1
	V.—Gangetic Plain and Chota Nagpur.				+·013								100·5	+3·7	81·0	+1·5	90·8	+2·6	19·5					36·8
15	Chota Nagpur .	Hazaribagh.	2,007	27·622	+·015	29·538	27·721	27th	27·513	15th	·208	84·5	97·2	+4·7	78·4	+2·6	87·8	+3·7	18·8	104·1	30th	71·3	4th	32·8
		Ranchi .	2,128	27·514	+·016	29·545	27·617	27th	27·409	15th & 16th.	·208	83·6	97·5	+6·4	77·7†	+3·1†	87·6†	+4·8	19·8	103·2	1st	72·4	8th & 10th	30·8
		Daltonganj.	730?	28·863*		29·535*	28·967	26th & 27th.	28·751	15th	·216	88·5	106·0		84·8		95·4		21·2	111·1	2nd	76·0	14th	35·1
		Purulia .		28·781		29·530	28·894	2nd	28·650	16th	·244	86·0	100·2		79·0		89·6		21·2	107·2	20th 21st, & 22nd,	71·4	10th	35·8
		Chaibassa .	760	28·841	+·010	29·541	28·950	2nd & 27th.	28·721	16th	·229	84·6	99·7	+3·5	79·6	+0·8	89·7	+2·2	20·1	106·2	2nd	70·0	6th	36·2
16	South Bihar .	Gaya . .	375	29·204	+·002	29·527	29·306	8th	29·063	15th	·243	88·0	102·4	+2·8	82·5	+2·3	92·5	+2·6	19·9	108·8	20th	70·8	6th	38·0
		Dehri . .	351	29·227		29·525	29·326	2nd	29·092	16th	·234	90·1	103·5		83·2		93·4		20·3	111·4	30th	72·5	4th	38·9
		Patna .	183	29·400	−·003	29·533	29·524	2nd	29·266	15th	·258	86·1	99·4	+3·0	80·6	+0·6	90·0	+1·8	18·3	110·0	30th	70·2	4th	39·8
		Arrah .	190	29·402		29·541	29·522	2nd	29·261	15th	·261	87·1	100·9		81·4		91·2		19·5	109·9	30th	69·1	4th	40·8
		Buxar .	239	29·336		29·526	29·444	2nd	29·183	15th	·261	88·1	101·3		82·4		91·8		18·9	109·0	30th	69·6	6th	39·4
17	North Bihar .	Bhagalpur .	160	29·433		29·544	29·615	2nd	29·276	15th	·339	84·8	95·5		79·4		87·4		16·1	104·3	30th	69·1	4th	35·2
		Darbhanga.	166	29·429	−·005	29·548	29·590	2nd	29·283	15th	·307	82·9	93·2	+0·8	79·3	+0·1	86·2	+0·5	13·9	101·3	30th	71·5	4th	29·8
		Muzaffarpur	178	29·416		29·546	29·569	2nd	29·271	15th	·298	83·9	95·2		78·3		86·8		16·9	105·7	30th	69·2	4th	36·5
		Motihari .	224	29·363		29·544	29·526	1st	29·218	15th	·308	82·0	94·2		77·6		85·9		16·6	102·4	30th	68·8	4th	33·6
		Chapra .	181	29·398		29·530	29·525	2nd	29·248	15th	·277	85·7	100·2		80·3		90·3		19·9	109·5	30th	69·6	4th	39·9
18	United Provinces, (East).	Benares .	267	29·310	+·013	29·526	29·403	2nd	29·170	15th	·233	90·3	105·0	+4·9	83·4	+1·5	94·2	+3·2	21·6	111·8	30th	76·6	6th	35·2
		Allahabad .	309	29·285	+·033	29·542	29·384	26th	29·159	15th	·225	91·4	105·7	+4·0	84·2	+1·7	95·0	+2·9	21·5	111·6	4th & 30th.	74·8	15th	36·8
23	United Provinces, (East Sub-montane).	Gorakhpur .	257	29·335	?	29·545	29·476	2nd	29·147	15th	·329	85·2	100·8	+3·9	80·2	+0·5	90·5	+2·2	20·6	109·2	30th	69·0	5th	40·2
9	South Oudh .	Lucknow .	368	29·211	+·018	29·530	29·320	26th	29·052	15th	·268	90·1	103·6	+3·1	83·1	+1·8	93·4	+2·5	20·5	112·3	30th	73·8	6th	38·5
21	North Oudh .	Bahraich .	401	29·185	+·009	29·541	29·321	2nd	28·982	15th	·339	88·3	102·0	+4·6	?	?	?	?	?	111·2	30th	?	?	?
21	United Provinces (Central).	Cawnpore .	416	29·170	+·030	29·531	29·290	26th	29·050	14th	·240	90·3	104·3	+3·2	84·0	+2·0	94·2	+2·6	20·3	112·6	2nd	76·0	6th & 11th	36·6
		Mainpuri .	516	29·072	?	29·535	29·212	26th	28·944	14th	·268	90·1	104·8	+3·6	82·2	+0·7	93·5	+2·2	22·6	113·7	2nd	70·5	7th	43·2

* Mean of 27 days.

† Mean of 29 days.

I—*continued.*

***in India, Burma, etc., in June 1902*—continued.**

WIND DIRECTION. Number of Winds from									Wind Resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.									Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of Districts.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th June 1902.	Normal rainfall for period, 1st May to 30th June.	Variation from normal of period 1st May to 30th June				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
17		1	2	5	2		3		S 31° E	3·9	4·5			78	·920	5·9	6	11·89	– 5·89	3·90	10·32	– 6·42	11·09	14·21	– 3·12	2·19	Bankura .	Central Bengal	11
18		3	3	1	2	1	1	1	S 72° E	1·7				81	·926	4·7	8	12·21	– 4·21	7·01	9·93	– 2·92	11·08	13·70	– 2·62	3·20	Raniganj .		
9	1	2	1	3	4	9		1	S 18° W	3·6	3·5	4·9	–29	84	·976	6·4	7	12·71	– 5·71	6·94	9·92	– 2·98	13·44	16·27	– 2·83	1·48	Burdwan .		
4	1	4	7	3	7	2	1	1	S 56° E	4·3	4·7			78	·914	6·3	6	12·03	– 6·03	4·23	9·96	– 5·73	7·52	13·56	– 6·04	1·10	Naya Dumka		
7		1	7	1	10	3		1	S 29° E	4·0	4·4	5·5	–20	86	·965	8·0	9	12·00	– 3·00	5·62	9·54	– 3·92	8·39	14·95	– 6·56	1·43	Berhampur.		
18		1		1	5	3	2		S 23° W	2·8	2·9			86	·952	4·4	14	12·58	+ 1·42	11·45	10·70	+ 0·75	19·20	16·24	+ 2·96	2·05	Rampur Boalia.		
1	1	2	9	4	8	3	1	1	S 42° E	1·3	1·2			86	·911	4·8	9	12·16	– 3·16	8·65	9·89	– 1·24	12·85	13·74	– 0·89	1·85	Malda .		
2		2	13	2	5	5	1		S 51° E	4·7	5·6			89	·934	7·8	14	14·35	– 0·35	14·97	12·90	+ 2·07	25·90	20·94	+ 4·96	5·15	Bogra .		
	1	6	9	7	5	1	1		S 74° E	3·9	3·7			89	·921	8·4	12	13·45	– 1·45	13·56	13·17	+ 0·39	21·36	21·62	– 0·26	3·10	Dinajpur .	North Bengal .	12
9		5	8	1	6	1			S 72° E	2·9	3·1			91	·935	5·7	17	15·61	+ 1·39	11·57	20·01	– 8·44	26·23	30·32	– 4·09	2·76	Rangpur .		
	4	9	7	7	2			1	N 77° E	1·7	2·2			90	·875	4·6	19	18·66	+ 0·34	29·18	22·86	+ 6·32	41·70	34·90	+ 6·80	5·75	Jalpaiguri .		
17		4	8		1				N 80° E	1·5	1·6			92	·918	8·6	18	19·24	– 1·24	27·61	32·15	– 4·51	44·44	47·41	– 2·97	8·04	Cooch Behar		
4		13	5	5	1	1		1	N 73° E	4·5	3·9	3·3	+18	86	·912	3·7	8	11·50	– 3·50	8·96	10·02	– 1·06	13·38	14·79	– 1·41	2·92	Purnea .	North Bihar .	17
10		1			6	11	1	1	S 37° W	5·6				76	·915	5·0	6	11·00	– 5·00	3·21	11·32	– 8·11	8·97	17·29	– 8·32	1·30	Balasore .	Orissa . .	14
2	2		1	2	4	11	5	3	S 55° W	12·3	11·8	11·5	+ 3	82	·983	7·8	9	9·27	– 0·27	2·95	8·30	– 5·35	6·38	13·53	– 7·15	0·55	False Point.		
14			1		3	10	2		S 39° W	3·4		4·0	–15	80	·946	6·2	10	11·26	– 1·26	7·77	10·82	– 3·05	10·48	15·06	– 4·58	1·98	Cuttack.		
10						19	1		S 47° W	15·8	14·8			85	1·010	5·4	6	8·11	– 2·11	4·06	7·99	– 3·93	4·06‡	7·99‡	– 3·93	1·26	Puri.		
																				2·38	7·36	–4·98					V.—Gangetic Plain and Chota Nagpur.		
1	2		2	1	6	3	7	8	S 85° W	9·8	8·7	8·9	– 2	55	·654	7·0	3	11·19	– 8·19	2·38	9·11	– 6·73	6·08	11·44	– 5·36	1·21	Hazaribagh.	Chota Nagpur	15
1	1	1	1	2	5	6	7	6	S 67° W	7·3	8·5			62	·711	5·2	8	12·47	– 4·47	2·45	10·36	– 7·91	5·37	12·44	– 7·07	0·65	Ranchi.		
17		2	2	1		6	2		S 27° W	4·6	5·5			57	·759	1·8	3	8·48	– 5·48	0·49	6·10	– 5·61	0·49	7·14	– 6·65	0·16	Daltonganj.		
21		1	1		1	1	5		S 76° W	1·6	2·0			68	·839	5·0	9	12·39	– 3·39	4·34	10·07	– 5·73	9·24	12·99	– 3·75	1·95	Purulia.		
16		1	1		2	5	4	1	S 60° W	2·0	1·8			75	·891	4·2	11	11·29	– 0·29	3·86	9·51	– 5·65	11·92	12·85	– 0·93	0·54	Chaibassa.		
5	2	8	1	2		5	7		N 45° W	4·8	4·3	3·4	+26	77	1·035	3·5	5	8·32	– 3·32	1·92	7·43	– 5·51	2·53	8·41	– 5·88	0·71	Gaya .	South Bihar .	16
1	1	2	10	1		2	13		N 81° W	8·3	7·3			55	·707	4·8	3	8·06	– 5·06	5·95	6·53	– 0·58	6·26	7·35	– 1·09	2·32	Dehri.		
		6	12	5			3	4	N 74° E	7·9	9·0	4·2	+114	73	·900	4·2	4	7·81	– 3·81	2·05	8·54	– 6·49	3·27	10·47	– 7·20	0·81	Patna.		
7	2	3	1	1			6	10	N 39° W	4·3	4·5			67	·842	2·0	4	7·90	– 3·90	1·83	6·95	– 5·12	3·34	8·42	– 5·08	1·05	Arrah.		
			16				14		E	14·1	12·8			59	·775	3·6	2	8·06	– 6·06	0·54	5·44	– 4·90	0·74	6·26	– 5·52	0·30	Buxar.		
4		6	10	2	1	2	4	1	N 84° E	4·7	4·3			76	·904	5·5	8	9·90	– 1·90	4·88	8·28	– 3·40	6·37	11·07	– 4·70	1·89	Bhagalpur .	North Bihar .	17
4		1	12	9		1	2	1	S 69° E	3·2		3·3	+15	82	·930	5·9	5	8·43	– 3·43	5·63	8·14	– 2·51	9·32	11·21	– 1·89	1·96	Darbhanga.		
9		2	9	6			2	2	S 85° E	5·6				82	·943	3·1	6	8·06	– 2·06	1·86	7·25	– 5·39	3·23	9·65	– 6·42	0·74	Muzaffarpur		
		3	21	1			4	1	N 84° E	6·1	5·8			82	·899	4·0	10	9·39	+ 0·61	5·07	8·90	– 3·83	9·30	11·55	– 2·25	1·20	Motihari.		
3			17	2	1	2	3	2	S 81° E	4·9	4·4			73	·883	4·0	4	7·61	– 3·61	3·07	6·40	– 3·33	4·11	7·75	– 3·64	1·55	Chapra.		
1	1	3	8	2		3	9	3	N 45° W	4·4	5·0	5·1	– 2	55	·773	3·0	1	6·80	– 5·80	0·58	6·23	– 5·65	1·21	6·87	– 5·66	0·50	Benares .	United Provinces (East).	18
	3	5	7				6	9	N 9° W	9·7	11·1	6·9	+61	49	·695	1·8	2	6·20	– 4·20	1·17	6·42	– 5·25	1·81	6·71	– 4·90	0·75	Allahabad.		
2	5	10	6	1	2	2	1	1	N 51° E	3·3		3·6	– 8	74	·881	6·0	5	7·70	– 2·70	1·42	9·09	– 7·67	2·21	10·43	– 8·22	0·64	Gorakhpur	United Provinces (East Sub-Montane).	23
2		1	11	1	1	2	9	3	S 18° W	4·0	4·4	4·2	+ 5	53	·738	1·5	2	6·10	– 4·10	1·17	5·71	– 4·54	1·96	6·72	– 4·76	0·95	Lucknow .	South Oudh .	19
		2	7	8	3	1		9	S 77° E	6·4	6·0			69	·917	3·8	3	7·30	– 4·30	0·64	6·53	– 5·89	2·19	8·48	– 6·29	0·30	Bahraich .	North Oudh .	20
3		2	5	2	1	6	9	2	S 60° W	6·7				51	·718	4·0	3	5·00	– 2·00	0·59	4·09	– 3·50	0·84	4·40	– 3·56	0·18	Cawnpore .	United Provinces (Central).	21
8	1		4		1	1	14	1	W	2·7	2·7			46	·659	4·1	1	4·60	–3·60	0·36	4·73	– 4·37	0·36	5·16	– 4·80	0·30	Mainpuri.		

‡Rainfall since 1st June 1902 only.

Table

Abstract of Observations taken at 8 A.M. at 224 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas.				+·021								100·3	−1·8	79·5	−0·1	90·0	− 0·9	20·8					42·0
24	United Provinces (West Sub-montane).	Bareilly	568	29·011	?	29·533	29·144	2nd	28·832	15th	·312	86·7	100·3	+0·6	80·8	+1·0	90·6	+0·8	19·5	108·0	30th	69·6	11th	38·4
		Dehra Dun	2,233	27·395	+·002	29·541	27·535	26th	27·251	15th	·284	80·4	92·8	−0·2	74·4	0	83·6	−0·1	18·4	101·0	4th	65·0	23rd	36·0
		Roorkee	899	28·679	+·016	29·533	28·827	26th	28·508	15th	·319	84·9	97·1	−3·3	78·7	+0·1	87·9	−1·6	18·4	108·2	4th	71·6	21st & 23rd.	36·6
22	United Provinces (West).	Meerut	738	28·829	+·012	29·523	28·985	26th	28·691	15th	·294	84·4	98·7	−1·9	79·5	−0·9	89·1	−1·4	19·2	109·2	5th	70·3	21st	38·9
26	South-East Punjab.	Delhi	718	28·855	+·020	29·526	29·024	26th	28·726	14th	·298	86·2	100·5	−2·7	82·0	−1·3	91·3	−2·0	18·5	111·7	5th	72·1	11th	39·6
28	Central Punjab.	Lahore	702	28·853	+·033	29·511	29·014	26th	28·726	14th	·288	88·6	105·0	−2·4	80·5	+1·2	92·8	−0·6	24·5	117·4	4th	70·9	20th, 21st 22nd.	46·5
27	South Punjab	Sirsa	662	28·806	+·034	29·523	29·066	26th	28·810	14th	·256	88·8	104·2	−2·5	82·5	−0·6	93·4	−1·6	21·7	115·8	3rd	68·1	22nd	47·7
		Patiala	818	28·759		29·533	28·900	26th	28·630	14th	·270	85·8	98·7		79·3*		89·0*		19·4	111·5	5th	71·0	20th	40·5
29	Punjab Sub-montane.	Ludhiana	812	28·752	+·026	29·519	28·896	26th	28·632	14th	·264	86·9	101·6	−3·2	81·5	+0·8	91·6	−1·2	20·1	113·9	4th & 5th	72·1	21st	41·8
		Sialkot	830	28·726	+·027	29·513	28·874	26th	28·570	15th	·304	87·5	104·1	−1·4	80·7	+0·2	92·4	−0·6	23·4	117·0	4th	69·6	24th	47·4
		Umballa	892	28·683	+·016	29·528	28·830	26th	28·565	14th	·265	85·3	99·2	−2·2	78·0	−2·2	88·6	−2·2	21·2	111·9	4th	69·0	23rd	42·9
31	North Punjab	Rawalpindi	1,674	27·916	+·024	29·529	28·061	26th	27·784	14th	·277	86·6	101·9	−0·9	76·3	+1·0	89·1	+0·1	25·6	114·0	7th & 15th.	66·1	25th	47·9
	VII.—N.-W. Frontier, Province, Indus Valley and North-West Rajputana.				+·030								104·1	−1·9	81·7	−0·6	92·9	−1·3	22·4					44·9
31	North Punjab	Peshawar	1,110	28·461	+·020	29·527	28·632	26th	28·314	16th	·318	89·7	105·9	0	78·3	+1·0	92·1	+0·5	27·6	117·5	7th	68·9	20th	48·6
32	West Punjab	Khushab	612	28·94 0	+·040	29·509	29·095	27th	28·788	6th	·307	90·0	104·8	−2·3	81·5	−0·9	93·2	−1·6	23·3	118·9	4th	71·9	24th & 25th.	47·0
		Montgomery	558	28·983	+·038	29·494	29·156	26th	28·871	6th	·285	91·3	105·3	−4·7	82·1	−2·0	93·7	−3·4	23·2	117·0	3rd	68·0	22nd	49·0
		D. I. Khan	550	28·952	+·023	29·479	29·130	26th	28·791	14th	·339	89·7	107·0	−1·0	81·1	−0·1	94·1	−0·6	25·9	119·7	5th	70·1	24th	49·6
		Mooltan	420	29·108	+·029	29·489	29·311	26th	29·002	14th	·309	88·2	106·0	−1·8	83·2	−0·5	94·6	−1·2	22·8	119·0	5th	73·5	22nd & 26th.	45·5
47	Sind	Jacobabad	186	29·351	+·038	29·494	29·549	26th	29·223	12th	·326	90·1	111·4	−1·3	84·1	−0·3	97·8	−0·8	27·3	125·0	5th	74·1	26th	50·9
		Hyderabad	96	29·482	+·034	29·529	29·671	26th	29·332	12th	·339	85·6	99·5	−4·7	80·5	−1·2	90·0	−3·0	19·0	111·7	13th	68·0	26th	43·7
		Kurrachee	30	29·579	+·016	29·559	29·762	2nd	29·195	16th	·567	85·9	93·3	−0·7	82·1*	0	87·8*	−0·4	11·2	106·4	14th	71·2	17th	35·2
51	West Rajputana	Bikaner	771	28·812	+·036	29·536	28·953	27th	28·654	12th	·299	89·2	104·6	−1·9	83·9	−1·3	94·3	−1·6	20·7	115·8	1st	72·0	21st	43·8
		Pachpadra	380	29·263	?	29·594	29·385	27th	29·066	12th	·319	86·9	104·9	−0·8	80·9	−0·2	92·9	−0·5	24·0	113·5	1st, 2nd & 3rd	72·3	26th	41·2
		Jodhpur	782	28·812		29·595	28·966	27th	28·645	12th	·321	85·6	102·5		81·4		92·0		21·1	112·2	1st	72·3	26th	39·9
	VIII.—East Rajputana, Central India and Gujarat.				+·043								100·3	+1·9	81·7	+1·2	91·0	+1·6	18·6					35·5
50	East Rajputana	Jaipur	1,431	28·219	+·044	29·585	28·340	26th	28·090	12th	·250	87·4	103·8	+1·3	81·6	+0·5	92·7	+0·9	22·2	113·2	1st	69·6	25th	43·6
		Bharatpur		29·007			29·163	26th	28·879	9th	·284	88·6	105·1		81·3		93·2		23·8	114·5	5th	55·7	11th	58·8
		Kotah	819	28·798		29·598	28·911	27th	28·630	12th	·281	92·3	106·7		86·8		96·8		19·9	114·1	2nd & 4th.	76·6	23rd	37·5
		Sambhar	1,254	28·387	+·054	29·583	28·502	27th	28·253	12th	·249	86·8	103·0	+0·7	82·4	0	92·7	+0·4	20·6	112·5	1st	71·9	27th	40·6
		Ajmer	1,611	28·049	+·035	29·598	28·167	27th	27·924	12th	·243	85·1	99·6	−0·9	81·9	+1·1	90·8	+0·1	17·7	107·9	1st & 2nd.	71·6	26th	36·3
		Udaipur	1,925	27·778		29·628	27·869	27th	27·631	12th	·238	84·5	98·1		79·9		89·0		18·2	107·1	1st	74·3	27th	32·8
		Deesa	466	29·220	+·040	29·637	29·373	2nd	29·038	12th	·335	85·5	103·5	+1·6	81·0	+0·4	92·4	+1·0	22·5	112·1	1st	76·0	2nd	36·1
46	Kathiawar and Cutch.	Bhuj	395	29·272	+·039	29·616	29·442	2nd	29·053	13th	·389	85·5	97·2	−0·4	79·0	−0·8	88·1	−0·6	18·2	105·3	12th	60·9	16th	44·4
		Jamnagar	61	29·624		29·631	29·791	2nd	29·346	13th	·445	86·8	96·5		80·2		88·3		16·3	104·2	2nd	77·2	1st & 14th.	27·0
		Rajkot	429	29·277	+·049	29·654	29·435	3d	29·017	13th	·418	85·2	100·8	+1·0	79·0	+1·4	89·9	+1·2	21·8	108·9	1st	76·2	2nd & 14th.	32·7
		Veraval	8	29·702	+·042	29·662	29·865	2nd	29·349	13th	·516	84·4	86·8	+0·4	82·0	+1·0	84·4	+0·7	4·8	93·1	12th	78·8	13th	14·3
		Dwarka	37	29·643		29·625	29·824	2nd	29·300	13th	·524	84·9	88·9		82·0		85·5		6·9	96·9	13th	76·7	15th	20·2
		Bhavnagar Para	55	29·679	?	29·680	29·826	2nd	29·428	12th	·398	86·8	101·1	+2·8	80·9	+0·5	91·0	+1·7	20·2	108·7	5th	73·8	16th	34·9
49	Central India	Nowgong	757	28·858	+·032	29·551	28·970	26th	28·749	12th	·221	91·9	105·9	+4·3	85·6	+3·2	95·8	+3·8	20·3	114·0	2nd	75·0	24th	39·0
		Indore	1,823	27·912	+·066	29·662	28·002	22nd	27·758	12th	·244	82·8	99·2	+4·8	77·1	+1·8	88·2	+3·3	22·1	107·8	4th	73·1	9th	34·7
		Neemuch	1,630	28·057	+·038	29·620	28·150	2nd	27·874	12th	·276	84·5	101·0	+2·7	79·1	+1·8	90·1	+2·3	21·9	110·6	3rd	72·0	20th	38·6
45	Gujarat	Surat	39	29·712	+·052	29·693	29·843	2nd	29·462	12th	·381	86·5	95·5	+1·8	80·8	+1·5	88·2	+1·7	14·7	103·2	4th	75·0	14th	28·2
		Ahmedabad	163	29·551	+·056	29·659	29·695	2nd	29·333	12th	·362	87·9	103·6	+3·9	82·5	+1·8	93·0	+2·9	21·1	109·8		78·1	14th	31·7

* Mean of 29 days.

I—*continued.*

in India, Burma, etc., in June, 1902—continued.

Wind direction. Number of winds from Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind resultant.	Wind velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th June 1902.	Normal rainfall for period 1st May to 30th June.	Variation from normal of period 1st May to 30th June.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				3·80	4·25	−0·32					**VI.—Upper Sub-Himalaya.**		
1	1	1	10			2	2	13	N 13° W	4·9	4·7	4·9	− 4	66	·827	1·4	4	4·91	−0·91	2·53	5·96	−3·43	2·79	6·72	−3·93	1·58	Bareilly	United Provinces (West Sub-montane).	
11					3	3	9	4	S 82° W	2·4		1·6	+50	58	·597	2·1	4	10·00	−6·00	3·70	10·26	−6·56	4·69	11·95	−7·26	1·69	Dehra Dun.		
11		1	2	11	1		1	3	S 49° E	4·5		3·9	+15	58	·679	1·6	4	6·00	−2·00	7·41	5·31	+2·10	8·81	6·13	+2·68	2·83	Roorkee.		22
8	1	1	5	5		6	2	2	S 18° E	2·5	2·5	2·6	− 4	62	·715	5·7	5	4·00	+1·00	5·75	3·49	+2·26	6·31	4·09	+2·22	1·73	Meerut	United Provinces West.	26
1	1	2	2	8	1	1	5	9	N 66° W	6·4	5·8	4·9	+18	56	·670	3·5	7	4·10	+2·90	6·35	3·41	+2·94	6·79	4·13	+2·66	2·16	Delhi	South-East Punjab.	28
6	1	2	1	10	1	1	6	2	S 11° E	3·6		3·5	+ 3	51	·671	2·1	4	2·30	+1·70	0·92	2·09	−1·17	1·65	2·91	−1·26	0·45	Lahore	Central Punjab	27
1	1	5	1	6	2	9	1	4	S 11° W	8·1	7·4	5·2	+42	54	·692	1·1	4	3·20	+0·80	1·89	1·79	+0·10	3·55	2·50	+1·05	0·88	Sirsa	South Punjab.	
	1	1	6	10	1	2	3	6	S 51° E	8·0	8·1			63	·786	2·4	3			2·33			2·82			1·46	Patiala.		
4		2		13	1	2	5	3	S 14° E	3·9	3·5	2·4	+46	52	·647	2·1	3	3·50	−0·50	1·69	3·02	−1·33	3·86	3·63	+0·23	0·91	Ludhiana	Punjab (Sub-montane).	29
5	1	6	9	3	1		1	4	N 66° E	2·9		2·4	+21	59	·740	1·8	6	3·60	+2·40	4·32	3·08	+1·24	5·61	4·11	+1·50	1·43	Sialkot.		
8			2	13			2	5	S 45° E	4·9				62	·738	2·8	5	4·30	+0·70	3·35	6·29	−2·94	4·20	7·02	−2·82	1·34	Umballa.		
16	1	4	2	3	2			2	N 74° E	2·9	2·7	2·6	+ 4	45	·534	2·5	5	3·30	+1·70	5·32	2·01	+3·31	6·64	3·48	+3·16	1·44	Rawalpindi.	North Punjab.	31
																				1·89	0·93	+0·96					**VII.—N.-W. Frontier Province, Indus Valley and North-West Rajputana.**		
17	3	3	1				3	3	N 16° W	3·4	3·7	4·3	−14	49	·629	1·1	2	0·90	+1·10	0·52	0·30	+0·22	0·62	1·05	−0·43	0·35	Peshawar	North Punjab.	31
4	1	12	8		3	2			N 72 E	6·6	7·7			43	·564	1·1	6	1·50	+4·50	2·91	1·72	+1·19	3·25	2·50	+0·75	1·32	Khushab	West Punjab.	32
1	1	2	2	4	5	14	1		S 18° W	10·1	8·7			44	·622	1·2	2	2·00	0	1·61	1·14	+0·47	2·11	1·41	+0·70	1·42	Montgomery		
14	2	7		5	1	1			N 76° E	2·0	2·1	2·4	−12	65	·890	0·8	3	1·30	+1·70	1·60	0·65	+0·95	1·73	0·99	+0·74	0·73	D. I. Khan.		
8		2	1	3	2	13		1	S 24° W	2·8	3·4	3·8	−11	63	·821	2·5	5	1·10	+3·90	2·61	0·62	+1·99	2·74	0·92	+1·82	0·96	Mooltan.		
7			2	16	5				S 39° E	5·0	5·2	4·7	+11	77	1·075	1·7	2	0·30	+1·70	0·27	0·09	+0·18	0·33	0·25	+0·08	0·12	Jacobabad.	Sind.	47
3				3	3	20	1		S 34° W	17·7	18·4	15·2	+21	67	·806	2·9	4	0·70	+3·30	3·57	0·38	+3·19	4·09	0·56	+3·53	1·45	Hyderabad.		
			2	2	1	11	13	1	S 63° W	13·2	16·5	18·5	−11	80	·981	4·8	4	0·50	+3·50	3·35	0·71	+2·64	5·20	0·71	+4·49	1·50	Kurrachee.		
1		1			4	11	12	1	S 63° W	12·0		7·8	+54	57	·788	1·9	4	2·10	+1·90	1·84	1·70	+0·14	1·91	2·58	−0·67	0·86	Bikaner	West Rajputana	51
				1	15	11	3		S 23° W	15·6	13·9	12·0	+16	68	·865	2·0	1	2·50	−1·50	0·34	1·46	−1·12	0·34	2·12	−1·78	0·24	Pachpadra.		
1					4	16	9		S 53° W	10·9	9·8			59	·729	3·6	2	2·60	−0·60	2·14	1·49	+0·65	2·14	1·76	+0·38	1·65	Jodhpur.		
																				1·06	4·67	−3·55					**VIII.—East Rajputana Central India and Gujarat**		
			2		1	9	15	3	S 76° W	7·8		7·3	+ 7	52	·690	1·9	4	4·40	−0·40	1·40	2·66	−1·26	2·01	3·15	−1·14	0·83	Jaipur	East Rajputana	50
1	1	1	5	1	2	2	14	3	S 88° W	6·4	5·8			62	·820	2·7	6			1·75			2·05			0·37	Bharatpur.		
				1		14	9	6	S 74° W	10·9	12·9			46	·685	0·8	2	6·20	−4·20	1·80	3·57	−1·77	2·16	4·68	− 2·52	1·30	Kotah.		
1	3		1	1	2	1	13	8	N 73° W	13·0		11·2	+16	52	·657	2·1	4	3·60	+0·40	1·70	1·58	+0·12	2·48	2·34	+ 0·14	0·97	Sambhar.		
				1		6	22	1	S 81° W	11·7		8·3	+41	63	·749	3·1	4	3·90	+0·10	1·75	2·48	−0·73	3·20	3·09	+ 0·11	0·45	Ajmer.		
3				2	4	11	9	1	S 52° W	8·8	8·9			65	·780	2·7	1	5·10	−4·10	0·67			1·30			0·55	Udaipur.		
				4	6	15	5		S 35° W	17·7		16·8	+ 6	67	·823	4·1	2	2·18	−0·18	0·67	2·27	−1·60	0·69	2·52	− 1·83	0·44	Deesa.		
				2	2	11	13	2	S 65° W	23·5		16·1	+46	75	·918	5·6	2	2·40	−0·40	0·67	2·03	−1·36	0·82	2·12	− 1·30	0·33	Bhuj.	Kathiawar and Cutch.	46
			1	2	8	13	5	1	S 35° W	21·0	25·0			69	·881	3·9	1			0·22			0·22			0·19	Jamnagar.		
		1		3	1	13	12		S 58° W	18·2	18·0	15·6	+15	68	·824	6·1	0	5·30	−5·30	0·07	5·12	−5.05	0·07	5·34	−5·27	0·05	Rajkot.		
3	1			5	4	13	4		S 32° W	12·2	12·2	10.6	+15	84	·985	6·2	3	4·60	−1·60	1·05	5·23	−4·18	1·05	5·25	−4·20	0·47	Veraval.		
	1		2		3	15	8	1	S 56° W	22·5				81	·975	6·0	1			0·51			0·55			0·12	Dwarka.		
	1			4	2	17	3	3	S 46° W	14·8	13·9			63	·800	6·3	3	5·70	−2·70	0·45	5·02	− 4·57	0·58	5·12	−4·54	0·20	Bhavnagar Para.		
2	2		3		1		17	5	N 75° W	4·3	4·3	4·4	− 2	43	·627	4·6	2	7·30	−5·30	0·80	8·15	−7·35	0·80	8·48	−7·68	0·60	Nowgong	Central India.	49
				1		4	23	2	S 86° W	12·2	9·9	7·0	+41	64	·727	4·1	5	7·60	−2·60	2·08	6·35	−4·27	2·18	6·94	−4·76	0·91	Indore.		
		1				11	17	1	S 75° W	17·9	16·1	14·2	+13	72	·854	3·4	1	6·20	−5·20	0·20	4·95	−4·75	0·23	5·40	−5·17	0·10	Neemuch.		
	1				9	12	7	1	S 46° W	12·2	11·5	15·5	−26	74	·936	5·2	3	8·70	−5·70	1·59	9·62	−8·03	1·59	9·75	−8·16	0·99	Surat.	Gujarat.	45
	3			1	6	16	2	2	S 44° W	6·5	10·7			62	·808	5·7	0	4·80	−4·80	0·09	6·76	−6·67	0·49	6·77	−6·28	0·04	Ahmedabad		

Table

Abstract of Observations taken at 8 A.M. at 224 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
22	United Provinces West.	Agra	555	29·034	+·019	29·538	29·160	26th	28·916	14th	·264	88·9	103·2	−1·1?	83·6	?−0·9	93·4	−1·0?	19·6	113·5	5th	73·9	22nd	39·6
1	United Provinces Central.	Jhansi	858	28·771	+·040	29·566	29·202	26th	28·636	12th	·266	91·3	106·0	+3·2	86·9	+2·9	96·5	+3·1	19·1	114·4	2nd & 4th.	75·1	24th	39·3
	X.—Deccan				+·045								99·7	+5·0	77·8	+2·2	88·8	+3·7	21·9					37·2
38	Bombay Deccan	Belgaum	2,539	27·296	+·042	29·760	29·398	22nd	27·152	12th	·246	73·2	82·6	+1·8	67·9	−0·2	75·3	+0·8	14·7	94·3	2nd	64·4	13th	29·9
		Sholapur	1,590	28·202	+·037	29·733	29·301	1st	28·065	12th	·236	80·1	97·3	+2·5	74·5†	+1·3†	85·7†	+1·9	22·8	105·2	1st	69·5	29th	35·7
		Poona	1,840	27·951	+·040	29·729	29·051	22nd	27·736	12th	·315	78·2	92·3	+3·1	72·6	0	82·5	+1·6	19·7	105·0	1st	69·9	13th & 26th.	35·1
		Bijapur	1,946	27·870	+·056	29·750	27·974	22nd	27·709	12th	·265	77·8	93·0	+2·5	71·4	−0·8	82·2	+0·9	21·6	103·9	1st	67·8	13th	36·1
40	Khandesh	Malegaon	1,430	28·322	+·047	29·690	28·421	2nd & 22nd.	28·141	12th	·280	83·7	99·8	+4·9	76·1	+1·1	88·0	+3·0	23·7	108·8	1st	69·0	8th	39·8
		Ahmednagar	2,152	27·660	+0·64	29·735	27·754	2nd	27·461	12th	·293	79·1	94·6	+4·2	71·7	−0·6	83·2	+1·8	22·9	102·9	3rd	67·9	13th	35·0
41	Berar	Akola	930	28·799	+·054	29·663	28·390	2nd	28·659	12th	·231	87·4	104·1	+5·9	81·1	+3·4	92·6	+4·7	23·0	112·6	4th	75·9	29th	36·7
		Amraoti	1,215	28·508	+·055	29·659	28·586	22nd	28·394	11th	·192	86·4	103·4	+6·2	80·5	+3·7	91·9	+5·0	22·9	112·5	1st	74·5	29th	38·0
42	Central Provinces, West.	Khandwa	1,044	28·677	+·056	29·665	28·776	22nd	28·517	12th	·259	86·0	102·7	+5·1	81·4	+2·7	92·1	+3·9	21·3	111·7	4th	75·1	10th	36·6
		Hoshangabad	1,006	28·690	+·049	29·638	28·787	22nd	28·554	12th	·233	88·1	104·9	+6·8	83·1	+4·1	94·0	+5·5	21·8	113·0	4th	75·2	10th	37·8
		Nagpur	1,025	28·663	+·046	29·624	28·727	20th	28·556	11th	·171	88·5	105·5	+7·2	82·7	+4·2	94·1	+5·7	22·8	114·2	1st	75·1	7th	39·1
43	Central Provinces, Central	Chanda	634			Barometer	out of	order.				88·8	105·7	+7·2	82·6	+3·0	94·1	+5·1	23·1	114·2	4th	70·0	28th	44·2
		Seoni	2,033	27·672	+·048	29·597	27·736	26th	27·569	12th	·167	87·4	101·2	+7·0	77·9	+2·4	89·6	+4·7	23·3	108·9	2nd, 4th & 5th.	71·0	25th	37·9
		Jubbulpore	1,327	28·324	+·037	29·579	28·403	26th	28·202	12th	·201	88·7	103·9	+7·9	82·1	+3·7	93·0	+5·4	21·8	112·0	2nd & 3rd.	76·1	11th & 25th.	35·9
		Saugor	1,807	27·881?	+·057?	29·603?	27·967	26th	27·767	12th	·200	86·6	101·8	+4·0	81·1	+2·5	91·5	+3·8	20·7	110·5	3rd & 4th.	75·1	8th	35·4
49	Central India	Sutna	1,040	28·579	+·043	29·555	28·689	26th	28·490	12th	·199	91·1	105·0	+6·3	85·7	+4·6	95·3	+5·5	19·3	113·6	4th	77·1	7th	36·5
44	Central Provinces, East.	Raipur	970	28·674	+·023	29·570	28·747	26th	28·588	12th	·159	91·3	105·3	+8·1	83·1	+4·7	94·2	+6·4	22·2	113·5	4th & 5th.	73·9	11th	39·6
		Sambalpur*	486	29·138	+·009	29·562	29·229	27th	29·057	11th	·172	91·0	106·6	+9·3	85·0	+4·3	95·8	+6·8	21·6	114·6	6th	78·7	11th	35·9
39	Hyderabad (North).	Aurangabad	1,905	27·882		29·712	27·985	2nd	27·721	12th	·264	83·3	96·4		72·7		84·6		23·7	105·5	1st & 4th.	69·7	8th	35·8
		Indur		28·488			28·613	2nd	28·374	10th	·239	85·3	99·8		74·9		87·4		24·9	108·6	1st	62·2	8th	46·4
		Bidar	2,165?	27·633		29·718	27·758	4th	27·516	12th	·242	79·2	95·6		72·5		84·1		23·1	104·4	1st	68·4	15th	36·0
53	Hyderabad (South).	Gulbarga	1,503	28·295	+·046	29·741	28·379	22nd	28·182	12th	·197	79·7	97·2	+2·6	74·3	+0·5	85·7	+1·6	22·9	106·8	1st	70·3	13th	36·5
		Raichur	1,326	28·477	+·054	29·749	28·564	22nd	28·367	12th	·197	80·5	95·9	+1·2	74·9	+0·1	85·4	+0·7	21·0	105·0	4th	70·1	30th	34·9
		Hyderabad (Deccan).	1,690	28·090	+·052	29·711	28·169	22nd	27·980	12th	·189	81·2	97·3	+3·0	76·6	+2·2	87·0	+2·6	20·7	107·4	1st	70·2	28th	37·2
		Secunderabad	1,787	27·995	?	29·713	28·060	22nd	27·890	12th	·170	80·3	99·1	+4·8	75·8	+1·4	87·5	+3·1	23·3	108·3	4th	70·0	28th	38·3
		Hanumkonda	871	28·853		29·656	28·918	2nd	28·764	11th	·154	86·8	102·6		81·7		92·2		20·9	113·2	4th	73·3	29th	36·9
	X.—West Coast				+·032								86·6	+1·1	77·4	+0·7	82·0	+0·9	9·2					18·9
37	Konkan	Bombay	37	29·747	+·038	29·723	29·883	22nd	29·481	12th	·402	84·0	89·9	+2·3	81·1	+1·6	85·5	+2·0	8·8	95·0	4th	75·5	13th	19·5
		Ratnagiri	110	29·709	+·049	29·757	29·834	22nd	29·479	12th	·355	82·8	87·7	+1·1	78·5	+1·3	83·1	+1·2	9·2	93·4	1st	71·9	13th	21·5
		Mormugao	60	29·779	+·044	29·774	29·887	22nd	29·635	12th	·252	81·3	86·7	−0·3	77·4	−0·5	82·1	−0·4	9·3	93·0	6th	73·4	15th	19·6
		Goa	199	Bar	ometer	out of ord	er					81·0	84·1	−1·1	78·5	+0·7	81·3	−0·2	5·6	91·0	4th	74·5	13th & 15th.	16·5
		Karwar	44	29·803	+·037	29·779	29·922	22nd	29·662	12th	·260	80·2	86·0	+0·7	76·9	+0·8	81·5	+0·8	9·1	91·3	3rd & 4th.	73·0	1st	18·3
33	Malabar	Cochin	10	29·890	+·019	29·828	29·973	22nd	29·813	12th	·160	79·0	87·7	+2·7	75·3	+0·6	81·5	+1·7	12·4	91·8	4th	72·2	25th	19·6
		Calicut	27	29·860	+·022	29·816	29·965	22nd	29·770	12th & 29th.	·185	79·8	86·7	+2·1	75·4	+0·7	81·0	+1·4	11·3	91·8	3rd	72·5	13th & 15th.	19·3
		Mangalore	65	29·807	+·024	29·804	29·904	22nd	29·696	12th	·208	79·6	85·9	+0·9	75·7	+0·7	80·9	+0·8	10·2	91·7	1st	70·9	10th	20·8
		Trivandrum	198	29·696	+·022	29·825	29·770	22nd	29·625	11th	·145	79·8	84·8	+1·9?	77·5	+3·9?	81·2	+2·9?	7·3	89·5	3rd	74·5	25th & 26th.	15·0
	XI.—South India				+·035								95·6	+1·9	77·1	+0·8	86·3	+1·4	18·5					31·4
57	Madras (South).	Pamban	37	29·815		29·779	29·885	20th	29·752	12th	·133	84·7	92·2		80·0		86·1		12·2	94·8	22nd	72·2	20th	22·6
		Tinnevelly	168	29·677	+·022	29·773	29·755	20th	29·612	30th	·143	87·1	100·0	+2·9	80·3	+0·7	90·2	+1·8	19·7	103·9	19th	76·9	9th, 14th & 27th.	27·0
		Madura	447	29·391	+·035	29·771	29·471	21st	29·322	11th	·149	84·3	97·9	−0·3?	76·6	−0·5?	87·3	−0·4?	21·3	101·5	19th	67·1	1st	34·4
		Periyakulam	945	28·901			28·978	21st	28·822	11th	·156	81·2	96·6		72·3		82·7		24·3	100·7	2nd & 3rd.	69·5	21st	31·2

* Observations of 29 days.

† Mean of 29 days.

1—*continued.*

in India, Burma, etc., in June, 1902—continued.

WIND DIRECTION. Number of Winds from										WIND VELOCITY.				HYGROMETRY, 8 A.M.			RAINFALL.								Heaviest rainfall during month.	STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Resultant.	Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th June 1902.	Normal rainfall for period, 1st May to 30th June.	Variation from normal of period, 1st May to 30th June.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
1	1	4		4		16		4	S 49° W	7·1	8·2	5·7	+44	56	·735	2·6	4	3·90	+0·10	1·92	2·90	− 0·92	2·03	3·46	− 1·43	0·84	Agra	UNITED PROVINCES WEST.	22
1	1	1		1	1	8	8	9	N 88° W	5·0	5·6	5·8	− 3	53	·774	1·7	4	5·80	−1·80	·72	6·06	− 4·34	1·72	6·47	− 4·75	1·01	Jhansi	UNITED PROVINCES CENTRAL.	21
																				2·26	6·46	−4·18					IX.—Deccan.		
2		1			2	11	11	13	S 71° W	20·2		24·3	−17	84	·683	7·8	9	1·40	+7·60	8·13	8·44	− 0·31	10·08	10·93	− 0·85	1·78	Belgaum	BOMBAY DECCAN	8
					2	9	10	9	S 85° W	15·7	19·0	12·2	+56	65	·665	6·3	6	6·20	−0·20	4·84	4·36	+ 0·48	5·31	5·36	− 0·05	2·46	Sholapur.		
			1		2	9	15	3	S 74° W	15·4	17·4	16·0	+ 9	72	·695	5·7	7	8·50	−1·50	4·01	4·73	− 0·72	4·10	6·06	− 1·96	0·91	Poona.		
					2	10	17	1	S 71° W					77	·731	6·7	8	6·20	+1·80	4·52	3·55	+ 0·97	5·61	5·34	+ 0·27	1·68	Bijapur.		
					2	9	13	6	S 80° W	11·8	13·6	11·9	+ 14	89	·689	4·9	2	7·70	−5·70	3·17	4·44	− 1·27	3·17	5·17	− 2·00	1·54	Malegaon	KHANDESH.	40
																4·8	3	7·40	−4·40	2·20	5·14	− 2·94	2·37	6·02	− 3·65	1·30	Ahmednagar.		
2	1			1	4	2	12	8	N 88° W	11·4	13·9																		
						4	13	13	N 75° W	13·6	13·3	8·9	+49	54	·685	3·2	2	8·10	−6·10	0·47	5·20	− 4·73	0·47	5·63	− 5·16	0·25	Akola	BERAR.	41
					1	6	15	3	N 89° W	14·7	13·1	7·4	+77	66	·810	5·6	3	9·00	−6·00	1·14	6·82	− 5·68	1·43	7·45	− 6·02	0·75	Amraoti.		
	1					1	18	10	N 74° W	14·1		9·2	+53	56	·707	2·3	2	7·50	−5·50	0·76	5·81	− 5·05	1·25	6·16	− 4·91	0·46	Khandwa	CENTRAL PROVINCES, WEST.	42
						27		3	S 51° W	7·0	7·1	4·6	+54	66	·884	3·1	2	8·20	−6·20	1·42	6·78	− 5·36	1·94	7·33	− 5·39	1·07	Hoshangabad.		
5		1				5	9	10	N 77° W	13·4		10·0	+34	53	·697	3·3	3	9·70	−6·70	1·78	8·52	− 6·74	1·86	9·24	− 7·38	0·75	Nagpur.		
1					2	8	13	6	S 82° W	10·5	9·3	6·3	+48	50	·661	2·9	4	9·40	−5·40	2·56	7·68	− 5·12	2·91	8·42	− 5·51	0·82	Chanda	CENTRAL PROVINCES CENTRAL.	43
	6	2		1	2	4	6	9	N 57° W	6·1		5·7	+ 7	52	·669	2·0	3	12·30	−9·30	1·32	9·95	− 8·63	1·37	10·63	− 9·26	0·75	Seoni.		
				1	2	7	15	5	S 80° W	6·1	5·4	5·3	+ 2	49	·657	1·0	1	10·40	−9·40	0·77	9·50	− 8·73	0·85	10·05	− 9·20	0·63	Jubbulpore.		
		1				3	26		S 87° W	9·3	10·6	5·2	+104	53	·670	3·0	3	8·50	−8·50	0·72	8·79	− 8·07	0·74	9·29	− 8·55	0·27	Saugor.		
	1	3	4	2		7	10	3	S 83° W	8·8	9·4	9·6	− 2	44	·628	2·9	3	7·20	−4·20	0·42	7·32	− 6·90	0·42	7·70	− 7·28	0·12	Sutna	CENTRAL INDIA	44
2						16	9	3	S 68° W	11·8	10·9	8·9	+25	40	·573	3·8	2	10·40	−8·40	0·73	8·88	− 8·15	0·93	9·82	− 8·89	0·39	Raipur	CENTRAL PROVINCES, EAST.	44
	1			2	1	14	10	1	S 61° W	6·4	6·3	3·4	+85	62	·897	1·4	4	10·40	−6·40	1·29	11·35	−10·06	1·39	12·97	−11·58	0·44	Sambalpur.*		
				1		7	18	4	S 84° W	16·9	16·7			67	·692	4·1	6	8·10	−2·10	2·26	6·25	− 3·99	2·35	6·99	− 4·64	0·89	Aurangabad	HYDERABAD (NORTH).	39
4	3	5				2	2	14	N 34 W	14·7	12·4			56	·669	4·3	4	8·90	−4·90	1·71	4·65	− 2·94	1·71	5·04	− 3·33	0·50	Indur		
						24		6	S 58° W	10·2	8·6			83	·823	0	4	7·80	−3·80	2·51	5·74	− 3·23	2·77	6·74	− 3·97	1·32	Bidar.		
	5				1	8	7	9	N 75 W	15·0	14·4			70	·706	5·6	9	7·40	+1·60	4·28	5·71	− 1·43	4·55	6·87	− 2·32	1·16	Gulbarga	HYDERABAD (SOUTH).	53
				1		13	9	7	S 77° W	14·9	11·2			67	·692	3·4	8	6·20	+1·80	2·69	3·12	− 0·43	2·82	3·84	− 1·02	0·55	Raichur.		
2							25	3	N 86° W	9·2	8·9			65	·682	5·2	5			2·18	4·37	− 2·19	2·45	5·36	− 2·91	0·86	Hyderabad (Deccan).		
	1						3	16	10	N 76° W	14·0		12·3	+14	67	·694	3·9	5	6·80	−1·80	1·00	4·37	− 3·37	1·88	5·36	− 3·48	0·30	Secunderabad.		
	1				1	6	12	10	N 83° W	12·2	12·4			51	·690	5·1	6	6·70	−0·70	1·84			2·53			0·42	Hanumkonda.		
																				23·80	27·94	−4·14					X.—West Coast.		
				4	7	6	11	2	S 47° W	13·3		16·2	−18	80	·937	6·7	7	14·70	−7·70	9·77	19·63	− 9·86	9·77	20·34	−10·57	4·25	Bombay	KONKAN.	37
4			1	3	5	5	9	3	S 53° W	6·9	6·8	12·0	−43	80	·891	6·0	15	20·50	−5·50	21·04	30·20	− 9·16	21·05	31·65	−10·60	4·83	Ratnagiri.		
3		2		2	7	3	6	7	S 67° W	11·0				87	·930	7·8	22			37·61	23·63	+13·98	37·79	26·20	+11·59	5·13	Mormugao.		
3	4	5	1		5	8	2	2	S 68° W					86	·917	8·7	15			35·44	28·72	+ 6·72	35·80	31·05	+ 4·75	5·93	Goa.		
	7					10	9	4	N 82° W	5·9				83	·852	7·0	21	23·30	−2·30	39·00	35·98	+ 3·11	39·32	39·26	+ 0·06	6·14	Karwar.		
5	4	8	5	1		3	1	3	N 35° E	5·1				86	·870	7·9	21	21·20	−3·20	17·45	28·99	−11·54	23·88	41·38	−17·50	3·76	Cochin	MALABAR.	33
3	5	4	8	1	1		2	6	N 27° E	7·5	9·5			85	·869	7·5	15	24·30	−9·30	17·19	35·61	−18·42	23·07	43·39	−20·32	2·91	Calicut.		
17	1	1	4	4	1	1	1		S 64° E	3·0		3·7	−19	87	·887	8·1	19	24·60	−5·60	29·46	36·22	− 6·76	33·30	42·88	− 9·52	4·48	Mangalore.		
6	9							15	N 83° W	5·9				82	·845	7·7	11	16·50	−5·50	7·12	12·45	− 5·33	10·96	21·50	−10·5	2·37	Trivandrum.		
																				2·23	2·71	−0·48					XI.—South India.		
			1	5	3	20	1		S 28° W	11·7	12·4			81	·969	2·3	1	0·50	+0·50	0·61	0·12	+ 0·49	1·75	0·67	+ 1·08	0·61	Pambau	MADRAS (SOUTH).	57
	5	2	1	1	2	1	6	12	N 46° W	7·4	7·1			59	·769	4·2	1	1·20	−0·20	1·29	0·56	+ 0·73	4·29	1·93	+ 2·36	1·29	Tinnevelly.		
8	7	1				4	2	8	N 43° W	2·2	2·2	4·8	−54	61	·765	4·3	5	2·50	+2·50	5·65	1·25	+ 4·40	7·62	3·90	+ 3·72	2·21	Madura.		
17	6	1			2			3	N 9° W	3·8	4·2			66	·698	4·0	4	2·50	+1·50	1·51	1·05	+ 0·46	5·12	3·78	+ 1·34	0·53	Periyakulam.		

Table

Abstract of Observations taken at 8 A.M. at 224 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constantigravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
34	Madras, (South Central).	Salem	940	28·916	?	29·790	29·025	20th	28·837	11th	·188	82·3	96·1	+0·9	76·0	+1·8	86·1	+1·4	20·1	100·2	6th & 28th.	71·0	20th	29·2
		Coimbatore	1,348	28·509	+·034	29·801	28·587	22nd	28·424	11th	·163	78·5	91·5	+1·6	72·6	+1·0	82·0	+1·3	18·9	97·9	3rd	69·3	10th	28·6
35	Coorg	Mercara	3,781	26·203	+·045		26·276	20th & 22nd.	26·118	12th	·158	67·1	75·0	+2·1	63·1	−0·2	69·1	+1·5	11·9	85·0	5th	61·1	4 days	23·9
36	Mysore	Chitaldroog	2,405	27·451	+·045	29·768	27·538	22nd	27·357	12th	·181	75·9	88·4	+2·6	70·7	+1·2	79·6	+1·9	17·7	97·7	4th	68·9	5 days	28·8
		Bangalore	3,021	26·887	+·037	29·796	26·975	20th	26·800	12th	·175	73·2	86·9	+2·2	67·8	+1·0	77·4	+1·6	19·1	91·3	4th	64·8	24th	26·5
		Hassan	3,091	26·826	+·041	29·808	26·901	22nd	26·729	12th	·172	73·6	81·2	+1·7	65·9	−0·2	73·6	+0·8	15·3	89·1	4th	63·2	18th	25·9
		Mysore	2,518	27·385	+·040	29·818	27·469	22nd	27·298	12th	·171	74·5	87·8	+3·2	63·3	+0·1	78·1	+1·7	19·5	94·1	4th	65·0	18th	29·1
56	Madras, East Coast, South.	Negapatam	31	29·786	?	29·745	29·865	20th	29·710	11th	·155	86·2	97·1	0	80·9	+1·7	89·1	+0·9	16·2	103·1	7th	75·5	20th	27·6
		Cuddalore	12	29·798	+·033	29·739	29·808	20th	29·722	11th	·186	87·2	100·0	+1·8	81·4	+2·0	90·7	+1·9	18·6	105·2	6th	77·2	20th	28·0
		Trichinopoly	255	29·583	+·032	29·769	29·659	21st	29·516	12th	·143	85·0	100·6	+1·5	79·0	+0·6	89·8	+1·1	21·6	105·2	6th	73·9	19th	31·3
		Madras	22	29·770	+·024	29·722	29·905	20th	29·697	11th	·208	88·2	99·4	+0·9	82·7	+2·0	91·1	+1·5	16·7	108·0	6th	74·5	21st	33·5
		Vellore	707	29·104		29·744	29·238	20th	29·018	12th	·220	84·7	97·6*		75·7*		87·2†		21·9	103·9	4th	51·4	6th	52·5
55	Madras, East Coast, Central.	Nellore	71	29·709	+·051	29·713	29·835	20th	29·617	12th	·218	87·5	100·8	−1·0	81·9	−0·3	91·3	−0·7	18·9	106·8	1st	76·6	20th & 22nd.	30·2
		Masulipatam	15	29·730	+·039	29·679	29·826	2nd	29·635	11th	·191	88·5	102·0	+4·3	81·8	+1·6	91·9	+3·0	20·2	112·7	6th	75·1	3rd & 28th.	37·6
54	Madras, Central	Cuddapah	433	29·372	+·040	29·740	29·475	20th	29·261	12th	·214	85·3	100·4	+0·1	79·8	−0·8	90·1	−0·4	20·6	110·3	1st	73·2	20th & 30th.	37·1
		Kurnool	923	28·875	+·043	29·738	28·964	20th	28·763	12th	·201	81·6	99·0	+2·3	77·5	+0·6	88·3	+1·5	21·5	108·3	4th	72·4	15th	35·9
		Bellary	1,475	28·352	+·053	29·767	28·444	22nd	28·239	12th	·205	80·6	94·9	+0·4	75·7	−0·1	85·3	+0·2	19·2	103·0	1st	69·7	4th	33·3
52	Madras, East Coast, North.	Cocanada	26	29·685	+·019	29·646	29·804	2nd	29·574	11th	·230	88·1	101·8	+6·6	84·0	+3·0	92·9	+4·8	17·8	112·5	6th	78·0	23rd	34·5
		Waltair (Vizag.)	226	29·453	+·024	29·617	29·586	2nd	29·323	11th	·263	86·8	94·1	+0·4	81·9	−0·1	88·0	+0·2	12·2	102·9	16th	73·9	4th	29·0
		Gopalpur	21	29·620	+·013	29·781	29·738	2nd	29·514	12	·224	85·2	92·0	+2·8	80·1	−0·5	86·1	+1·2	11·9	104·8	17th	77·1	12th & 18th.	27·7
	XII.—Hill Stations.																							
													96·2		60·7		78·5		35·5	103·4	8th	54·1	10th	49·3
48	Baluchistan	Pishin										75·8	91·5	+0·9	61·0	+1·9	76·3	+1·4	30·5	97·6	8th	52·4	5th	45·2
		Quetta	5,502	24·489	+·009		24·647	2nd	24·379	16th	·268	76·4	91·3	−0·9	44·8	−4·1	68·1	−2·5	46·5	100·1	6th	40·3	3rd & 5th,	59·8
		Kalat																					2nd	41·1
		Chaman	4,311	25·490	+·002		25·659	3rd	25·374	24th	·285	86·5	101·2	+1·0	73·4	+1·8	87·3	+1·4	27·8	108·2	10th	67·1	5th	42·5
30	Punjab and North-West Frontier Province.	Leh	11,503	19·695	+·015		19·859	2nd	19·568	21st	·291	53·3	67·5	−5·6	42·7	−1·9	55·1	−3·8	24·8	77·6	30th	35·1	5th	38·6
		Srinagar	5,204	24·729	−·002		24·869	26th	24·612	24th	·257	65·8	82·6	−0·5	57·5	−1·3	70·1	−0·9	25·1	91·3	8th	52·7	4th	38·6
		Gulmarg		21·801			21·939	2nd	21·671	24th	·268	58·8	65·9		43·6		54·8		22·3	77·1	8th	37·3	23rd	39·8
		Sonemarg		21·782			21·928	2nd	21·657	24th	·271	50·8	69·2		41·5		55·4		27·7	81·8	7th	36·6	11th & 12th,	45·2
		Skardu		22·756			22·936	2nd	22·582	24th	·354	65·6	80·5		56·4		68·5		24·1	94·1	30th	50·7	11th	43·4
		Dras		20·754			20·868	3rd	20·619	24th	·249	58·5	76·4		42·4		59·4		34·0	87·0	30th	36·6	5th	50·4
		Gilgit	4,890	24·952			25·118	27th	24·794	24th	·324	74·5	93·1	−1·5	67·9	−2·1	80·5	−1·8	25·2	105·6	30th	58·1	22nd	47·5
		Chitral‡		24·191			24·575	2nd	24·095	16th	·280	78·8	96·0		65·3		80·7		30·7	102·4	29th	57·0	24th & 25th.	45·4
		Killa Drosh										77·1	93·1		71·0		82·1		22·1	102·8	7th	56·9	24th	45·9
		Para Chinar	6,000	24·320			24·463	27th	24·193	14th	·270	76·8	87·7		66·3		77·0		21·4	99·1	7th	54·6	22nd	44·5
		Cherat		25·537	+·029		25·705	2nd	25·443	14th	·262	79·8	93·4	−0·9	73·6	+0·5	83·5	−0·2	19·8	105·9	7th	59·0	25th	46·9
		Murree	6,333	23·744	+·012		23·872	27th	23·663	24th	·209	71·0	78·5	−3·2	59·3	−5·2	68·9	−4·2	19·2	90·4	7th	42·0	24th	48·4
		Poo											74·3		53·1		63·7		21·2	85·1	8th	44·3	23rd	40·8
		Simla	7,224	23·020	+·015		23·132	27th	22·956	24th	·176	64·8	72·5	−1·9	59·6	−1·4	66·1	−1·7	12·9	83·5	5th	51·2	12th	32·3
	United Provinces	Chakrata	7,022	23·181	+·010		23·304	26th	23·072	16th	·232	64·0	72·2	−2·1	59·6	−0·4	65·9	−1·3	12·6	79·3	17th	50·3	28rd	29·0
21		Mussooree	6,705	23·448	+·008		23·570	27th	23·344	16th	·226	66·4	75·4	−1·3	60·5	−0·2	68·0	−0·8	14·9	82·3	4th & 30th.	53·0	23rd	29·3
		Ranikhet	6,069	23·975	+·011		24·101	26th	23·852	16th	·249	68·9	78·4	+0·5	62·8	−0·2	70·6	+0·2	15·6	84·5	29th	54·0	5th	30·5
		Muktesar		22·756			22·880	26th	22·638	16th	·242	64·3	75·3		57·3		66·3		18·0	84·6	30th	51·1	10th	33·5

* Mean of 29 days. † Mean of 28 days. ‡ Observations for 28 days.

I—*continued.*

in India, Burma, etc., in June, 1902—continued.

WIND DIRECTION. Number of Winds from									Wind resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.								Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in *miles* per *hour*, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th June 1902.	Normal rainfall for period, 1st May to 30th June.	Variation from normal of period, 1st May to 30th June.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
17					3	6	3	1	S 51° W	2·6	2·3	4·9	−53	73	·809	5·6	3	4·80	−1·80	5·19	2·97	+ 2·22	13·73	7·98	+ 5·75	4·55	Salem .	Madras, (South Central).	34
						4	26		S 84° W	5·0	4·5	7·7	−71	82	·807	5·0	3	4·90	−1·90	0·78	1·65	− 0·87	6·58	3·93	+ 2·65	0·34	Coimbatore.		
15						1	11	3	N 34° W	5·1	4·7	9·0	−48	92	·617	7·9	16	24·80	−8·80	10·92	27·35	−16·43	14·83	33·13	−18·30	2·19	Mercara .	Coorg.	35
	1					9	15	5	S 86° W	10·1	11·6			76	·680	6·4	3	6·00	−3·00	1·54	3·80	− 2·26	3·45	7·54	− 4·09	0·58	Chitaldroog.	Mysore.	36
						10	17	3	S 79° W	11·1	9·7	8·4	+15	77	·631	6·9	1	5·70	−4·70	2·45	3·05	− 0·60	10·24	7·27	+ 2·97	2·35	Bangalore.		
		1			1	6	11	11	N 82° W	4·8	4·2			78	·642	8·0	8	10·4	−2·40	2·44	5·01	− 2·57	8·12	10·18	− 2·06	0·63	Hassan.		
1	1					14	12	2	S 72° W	10·1	10·9			78	·657	8·1	5	6·00	−1·00	1·60	3·81	− 2·21	7·35	7·18	+ 0·17	0·73	Mysore.		
4				2	3	15	6		S 45° W	8·1	7·1	8·3	−14	68	·858	4·1	3	3·20	−0·20	1·56	1·50	+ 0·06	1·66	3·11	− 1·45	1·08	Negapatam	Madras, East Coast, South.	6
21						7	2		S 54° W	1·8	2·2			65	·339	6·2	1	3·10	−2·10	0·21	2·00	− 1·79	1·13	2·28	− 1·15	0·19	Cuddalore.		
5						6	19		S 80° W	5·4		9·2	−42	66	·792	3·6	4	1·90	+2·10	2·63	1·50	+ 1·13	4·63	4·44	+ 0·19	0·86	Trichinopoly		
	1			5	9	13	2		S 67° W	8·9		9·0	− 1	61	·811	4·8	2	8·10	−6·10	0·39	2·21	− 1·82	0·56	3·11	− 2·55	0·15	Madras.		
15		1		4		4		6	S 76° W	4·9	4·9			56	·666	5·9	5	4·60	+0·40	2·55	2·62	− 0·07	4·12	5·64	− 1·52	1·02	Vellore.		
1				1	1	1	12	14	N 71° W	8·5				60	·775	6·6	5	3·00	+2·00	1·69	1·20	+ 0·49	1·85	1·59	+ 0·26	0·46	Nellore .	Madras, East Coast, Central	55
				1	1	3	6	19	N 65° W	14·1	13·5	9·4	+44	77	1·039	6·6	5	6·00	−1·00	2·25	4·83	− 2·58	2·41	6·10	− 3·69	0·95	Masulipatam.		
						6	13	11	N 82° W					64	·768	6·0	9	4·60	+1·40	5·49	3·35	+ 2·14	5·93	5·15	+ 0·78	3·14	Cuddapah.	Madras, Central	54
5	1				1	15	8		N 74° W					66	·706	5·2	4	5·90	−1·90	1·84	3·36	− 1·52	2·39	4·31	− 1·92	1·02	Kurnool.		
2	1			1	8	8	10		N 86° W	10·2	10·8	10·5	+ 3	67	·697	5·0	6	4·20	+1·80	4·54	1·78	+ 2·56	8·59	3·76	+ 4·83	1·75	Bellary.		
2				2	18	5	3		S 58° W	11·5	9·7			66	·882	3·7	2	6·20	−4·20	1·10	4·76	− 3·66	2·00	5·69	− 3·69	0·77	Cocanada .	Madras, East Coast, North.	52
		1			29				S 45° W	15·8				65	·817	7·5	5	5·70	−0·70	2·45	3·83	− 1·38	3·09	6·30	− 3·21	1·20	Waltair (Vizag.).		
1		1	1		8	18	1		S 31° W	17·8	17·4	11·6	+50	80	·952	4·6	6	7·10	−1·10	1·70	6·14	− 4·44	2·05	8·24	− 6·19	0·46	Gopalpur.		
																											XII.—Hill Stations.		
																	0	0·20	−0·20	0	0·03	− 0·03	0	0·22	− 0·22	0	Pishin.	Baluchistan .	4
28				1	1				S 24° E	2·0	2·1	4·7	−55	52	·460	0·5	1	0·80	+0·20	0·48	0·19	+ 0·29	0·58	0·59	− 0·01	0·46	Quetta.		
	5		12		13				S 56° E					45	·405		3	0·50	+2·50	1·21	0·46	+ 0·75	1·36	0·72	+ 0·64	0·61	Kalat.		
6	1	1	1	2	5	7	3	4	S 48° W	10·7	11·8			46	·593	0·8	0	0·10	−0·10	0	0·09	− 0·09	0·02	0·14	− 0·12	0	Chaman.		
	1	10	6		5	6	2		S 8 E	2·5				42	·170	4·3	0	0·60	−0·60	0·15	0·17	− 0·02	0·52	0·39	+ 0·13	0·07	Leh . .	Punjab and North-West Frontier Province.	30
12	1		2	4	7		3	1	S 7° E	3·2	3·4			90	·575	3·1	7	3·80	+3·20	3·01	1·79	+ 1·22	6·29	4·39	+ 1·90	0·96	Srinagar.		
9		7	9	2		1	1	1	N 73° E	4·4	5·1			83	·422	3·2	12			5·21						0·97	Gulmarg		
15	2	8		2	1		2		N 45° E	4·7	4·3			80	·299	2·7	9			1·92			7·13			0·41	Sonemarg .		
14	3	4	1		2	5	1		N 67° W	4·9	4·9			52	·327	3·3	0	1·10	−1·10	0·35	0·40	− 0·05	1·07	1·44	− 0·37	0·09	Skardu.		
12			4	3	1	5	2	3	S 18° W	4·1	4·2			58	·275	3·0	0	1·70	−1·70	0·06	0·71	− 0·65	2·90	3·53	− 0·63	0·03	Dras.		
28					1	1			S 63° W	3·8	3·4			43	·360	2·9	1	0·80	+0·20	0·10	0·35	− 0·25	0·93	0·92	+ 0·01	0·10	Gilgit.		
24	1		1		2				S 45° E					39	·381	1·7	1			0·27			0·56			0·27	Chitral.		
														36	·321	1·0	3			0·79			1·58			0·39	Killa Drosh.		
11	9	2	4		1	1		2	N 17° E	4·6				40	·344	0·8	9	3·40	+5·60	3·08	1·43	+ 1·65	5·08	3·45	+ 1·63	0·50	Para Chinar.		
	2	3		6	8	4	2	5	S 16° W	8·7	8·1			42	·396	2·4	2			0·47	0·73	− 0·26	1·27	1·94	− 0·67	0·37	Cherat.		
15		1	2	6	1	1	1	3	S 45° E	8·0	8·6	6·6	+30	49	·365	2·9	10	8·00	+2·00	8·06	3·52	+ 4·54	12·17	6·49	+ 5·68	1·93	Murree.		
24		1		3		1		1	S 45° E							4·0	2			0·53	0·27	+ 0·26	1·41	0·98	+ 0·43	0·27	Poo.		
7	3	2	2	3	3	1		9	N 17° W	5·5		2·3	+139	61	·359	4·3	8	9·80	−1·80	3·52	7·85	− 4·33	·535	10·91	− 5·56	1·19	Simla.		
20	3	2			4	1			S 67° W	10·1		5·7	+77	65	·390	2·9	6	10·60	−4·60	3·79	8·77	− 4·98	8·20	11·20	− 3·00	1·10	Chakrata .	United Provinces	25
			11	7	2	4	5	1	S 38° E					65	·424	2·8	5	10·70	−5·70	3·62	10·81	− 7·19	6·75	13·05	− 6·30	0·99	Mussooree.		
10	2	1	2		1	2	7	5	N 66° W	4·0	4·6	3·2	+44	66	·464	3·0	6	10·40	−4·40	4·49	6·47	− 1·98	5·61	8·75	− 3·14	1·73	Ranikhet.		
	1	2	1	7	3	2	1	13	N 63° W	6·5	6·0			67	·401	2·4	5			2·77			4·68			0·86	Muktesar.		

Table

Abstract of Observations taken at 8 A.M. at 224 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity (45° Lat.).	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
13	Bengal	Yatung	10,480?																					
		Darjeeling	7,376	22·903	−·022		23·035	2nd	22·780	14th	·245	59·7	65·0	−0·2	56·0	−0·2	60·5	−0·2	9·0	68·7	27th	51·6	4th & 5th	17·1
8	Assam Hill Tracts.	Shillong	4,920	24·964			25·093	26th	24·829	15th	·264	67·7	74·4		64·0		69·2		10·4	80·1	20th	58·0	26th	21·1
		Cherra Poonjee	4,309	25·538			25·680	2nd	25·347	14th	·333	66·8	72·0		63·9		68·0		8·1	77·3	3 days	61·0	1st & 23rd	16·3
	Central India	Mount Abu	3,945	25·906	+·045		26·036	2nd	25·779	12th	·257	72·2	83·7	+0·4	68·6	+0·5	76·2	+0·5	15·1	92·2	1st	64·8	20th	27·4
		Pachmarhi	3,528	25·312	+·058		26·384	22nd	26·184	12th	·200	78·4	91·1	+8·2	74·6	+2·6	84·4	+5·4	19·5	101·2	2nd & 4th.	67·2	9th	34·0
	South India	Wellington	6,200	24·213	+·029		24·272	22nd	24·135	11th	·137	66·0	79·2	+2·0	55·7	−2·3	65·0	−0·2	18·5	78·2	2nd	51·2	21st	27·0
		Kodai Kanal	7,688	22·806			22·855	3rd	22·734	11th	·121	59·4	66·2		53·9		58·4		12·3	70·3	3rd	51·0	19th	19·3
		Ootacamund		23·032			23·089	22nd	22·953	12th	·136	58·8	64·4		51·8		58·1		12·6	70·0	2nd	48·8		21·2
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·842	+·047	29·780	29·929	20th	29·773	12th	·156	82·9	93·1	+1·5	78·5	+0·1	85·8	+0·8	14·6	96·0	17th	76·0	20th	20·0
		Colombo	40	29·859	−·001	29·825	29·945	20th	29·788	11th	·157	83·2	88·5	+2·8	78·3	+0·8	83·4	+1·8	10·2	91·5	18th & 19th.	73·0	20th	18·5
	Persia	Meshed	3,104									81·8			64·6	+1·2						56·8	8th	
		Teheran		25·741§			25·906	8th	25·550	14th & 15th.	·410	85·3‡	99·0‡	+4·6	73·0‡	+5·8	86·0‡		26·0	106·6	24th	59·0	6th	47·6
				24·673‖			24·820	8th	24·460	15th	·360													
		Ispahan		24·208§			24·400	7th & 8th.	23·970	15th	·430	80·4‡	97·4‡		64·9‡		81·2‡		32·5	103·5	24th	59·1	7th	44·4
		Bushire	14	29·567	−·007	29·540	29·694	4th	29·409	16th	·285	87·7	93·7	+1·8	83·4	+2·9	88·5	+2·4	10·3	109·0	6th	78·4	1st	30·6
		Bahrein	30	29·607†			29·693	3rd	29·503	14th	·190	89·4‡	95·7**		83·5†		89·7**		12·2	105·7	6th	77·6	24th	28·1
		Jask		29·550	−·017		29·755	3rd	29·359	14th	·396	89·1	76·0	+0·2	65·1	+2·0	90·6	+1·1	10·9	104·2	7th	80·7	19th	23·5
		Muscat	20	29·560	+·007	29·527	29·755	3rd	29·365	16th	·390	90·8	92·8	−1·0	88·6	+0·5	90·7	−0·3	4·2	97·3	6th	83·9	3rd	14·0
	Arabia	Baghdad	220	29·529	−·050	29·718	29·677	1st	29·365	14th	3.2	87·5	107·4	+5·0	76·9	+1·5	92·2	+3·6	30·5	112·0	27th	70·6	13th	41·4
		Bussrah		29·652			29·780	7th & 8th.	29·488	17th	·292		102·3		83·3		92·8		19·0	111·4	1st	77·9	12th	33·5
		Aden (c)	94	29·647	−·001	29·670	29·738	22nd	29·525	15th	·213	87·9	94·9	+0·2	84·9	+1·2	89·9	+0·7	10·0	97·3	4th & 17th.	79·3	6th	18·0
		Perim	201	29·538	0	29·669	29·624	22nd	29·445	15th	·179	87·6	94·4	−0·8	84·8	+2·1	89·6	+0·7	9·6	99·5	25th	74·0	7th	25·5
	Afghanistan	Kabul										75·3	91·4	+2·2	57·1	−1·6	74·3	+0·3	34·3	99·1	16th	51·4	26th	47·7
	Central Asia	Kashgar	4,255	25·474¶			25·620	2nd & 10th.	25·310	15th & 17th.	·310	76·3	88·9	−1·0	62·8	−2·8	75·9	−1·9	26·1	101·9	30th	53·3	1st	48·6
		Amini Devi	13																					
	Arabian Sea Islands.	Minicoy	7	29·910		29·842	29·993	22nd	29·825	11th	·168	83·1	87·3	+1·7						90·6	17th		28th	
	Africa	Zanzibar	73	30·035	−·041	30·035	30·099	23rd	29·982	10th	·117	76·5	82·5	+1·0	74·8	+0·6	78·7	+0·8	7·7	84·3	16th	73·5	30th	10·8
		Do. Dunga		29·966†			30·075	29th	29·909	10th & 19th.	·166	73·2‡‡	84·8‡‡		67·3‡		76·0‡‡		17·5	87·5	13th	64·5		23·0
	Straits Settlements.	Penang¶	...																					
		Singapur¶	...																					

* Observations of 19 days.
() Observations of 29 days.
† Mean of 26 days.
¶ Aneroid uncorrected.
‡ Mean of 29 days.
‖ Mountain barometer, uncorrected.

NOTE.—When a query is inserted against any reading or in the variation returns for any station, the

I—*concluded.*

in India, Burma, etc., in June, 1902—concluded.

WIND DIRECTION. Number of winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Resultant.	WIND VELOCITY. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	HYGROMETRY, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	RAINFALL. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th June 1902.	Normal rainfall for period, 1st May to 30th June.	Variation from normal of period, 1st May to 30th June.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																		17·00			7·17			12·05	−3·19		Yatung	Bengal.	13
11		3	1	4	1	3	4		S 37° W	5·9	5·5	4·7	+17	93	·476	8·6**	21	20·81	+ 0·19	23·10	23·77	−0·67	28·64	32·55		2·97	Darjeeling.		
														86	·582	8·8	13			18·50						3·56	Shillong	Assam Hill Tracts.	8
														94	·621	8·7	25			132·29						23·01	Cherra Poonjee.		
				2	5	17	3	2	S 41° W	16·5	16·7	10·1	+65	71	·536	4·9	4	6·70	− 2·70	2·36	6·21	−3·85	2·95	7·20	−4·25	1·47	Mount Abu	Central India.	
1														61	·582	3·6	6	11·00	− 5·00	1·74	10·92	−9·18	1·81	11·42	−9·61	0·46	Pachmarhi.		
4	2					7	17		N 54° W	11·7	12·1	7·7	+57	71	·453	6·6	3	8·00	− 5·00	0·70	3·61	−2·91	4·74	7·37	−2·63	0·14	Wellington	South India.	
15	1	1		3		8	2		S 39° W	3·7		5·1	−27	72	·368	4·7	8	8·50	− 0·50	3·67	4·01	−0·34	7·62	10·48	−2·86	1·10	Kodai Kanal		
2	1	1		2	1		9	14	N 62° W	13·0				82	·405	6·0	11	13·30	− 2·30	5·67	6·18	−0·51	15·42	12·11	+3·31	1·05	Ootacamund		
11		1	2			4	9	3	W	3·9	3·7																XIII.—Extra India.		
						30			S 45° W	14·1				81	·926	2·4	3			2·05	1·51	+0·54	2·46	3·97	−1·51	1·03	Trincomalee	Ceylon.	
														82	·941	6·8	14			11·35	8·23	+3·12	22·01	19·35	+2·66	6·09	Colombo.		
				3	1	6	19	1	S 28° W	8·7		10·2	−15	40	·431	0	0			0	0·23			0·97		0	Meshed	Persia.	
														28††	·3111	1·5‡	0			0	0·04	−0·04	0	0·37	−0·37	0	Teheran		
15		2			3	4	3	2	S 63° W	1·9	2·5			45‡	·473‡	1·2‡	0			0·03	0	+0·03	0·04	0·11	−0·07	0·03	Ispahan(a).		
26							3		W	4·2††	5·1††																		
														65	·855	0·5	0			0	0	0	0	0	0	0	Bushire.		
1	3				2	3	3	18	N 57° W	12·0	14·3	10·8	+32	73‡	1·001†	0**	0			0			0			0	Bahrein,(b)		
1	5						6	13																					
		1												67	·935	0	0			0	0·11	−0·11	0	0·11	−0·11	0	Jask.		
3			6	8			9	4	N 45° E	13·7	15·9			71	1·025	0·4				0	0·36	−0·36	0	0·36	−0·36	0	Muscat.		
	1			14				15	N 27° W	4·5	4·7																		
20	5							5	N 23° W	2·7	3·6			53	·426	0·4	0			0	0	0	0	0·24	−0·24	0	Baghdad.	Arabia.	
																	0			0			0			0	Bussrah.		
			4	1	2	6	2	1	N 71° E	9·3	9·1	7·6	+20	74	·981	4·7	0			0	0·01	−0·01	0	0·20	−0·20	0	Aden.		
														81	1·055	1·4	1			1·35	0	+1·35	1·35	0·37	+0·98	1·35	Perim.		
	1	12	3	5		6	7	5	S 81° W	13·3	11·9																		
		3	2	3	4	15			S 9° W					32	·282	0·5	0			0	0·21	−0·21	0·67	0·75	−0·08	0	Kabul	Afghanistan.	
		6	imperfect							3·6	3·3			41	·366	1·8	0			0	0·31	−0·31	0	1·19	−1·19	0	Kashgar	Central Asia.	
																					13·14			17·24			Amini Devi.	Arabian Sea Islands.	
	4				3	9	8	6	S 87° W	11·1	11·9			79	·901	8·1	14			14·73	8·60	+6·13	21·79	15·00	+6·79	3·47	Minicoy.		
														87	·793	6·4	3			1·00	1·07	−0·07	13·08	11·69	+1·39	0·40	Zanzibar	Africa.	
1				2	15	11	1		S 16° W	8·6	8·1												11·69			1·56	Do. Dunga		
1	1		1	2		22	1		S 41° W	5·6	5·4			93	·761	5·5	5			2·65							Penang	Straits Settlements.	
																											Singapur		

data for that station are not utilized in calculating the provincial variations.

(a) Wind observation of 29 days. (b) Wind observation of 26 days. ¶ Aneroid corrected. ** Mean of 25 days. †† Mean of 24 days. ‡‡ Mean of 28 days.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 64 Stations in India, Burma, etc., in June, 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M.

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity, 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Bay Islands.	Port Blair	61	29·790	29·708	·082	29·745	+·021	29·737	86·5	77·6‡	8·9	89·7	73·6	16·1	83·3	84·9	81·1‡	+0·3	75·4	79·8	79·8	78·3
	Rangoon	41	·738	·651	·084	·706	−·029	·683	86·8	76·5	10·3	93·1	74·2	18·9	83·8	81·8	79·6	+0·2	75·3	79·1	77·9	77·4
	Diamond Island	41	·756	·679	·077	·714	−·006	·689	85·2	77·6	7·6	88·4	74·0	14·4	83·1	82·4	80·2	+0·7	74·6	79·3	78·5	77·5
	Cocos Island	119	·668	·617	·051	·639	P	·689	87·8	77·9	9·9	91·3	73·4	17·9	84·5	84·5	81·5	+0·8	75·6	80·1	80·0	78·6
	Akyab	20	·698	·626	·072	·665	−·012	·628	86·1	77·9	8·2	90·9	74·0	16·9	82·8	83·7	81·1	−0·1		80·3	80·6	
Bengal and Orissa.	Chittagong	87	·604	·513	·091	·565	−·002	·599	86·5	76·0	10·5	90·7	70·1	20·6	83·0	83·8	80·3	−0·2	75·1	79·1	79·4	77·9
	Calcutta (Alipore)	21	·613	·523	·090	·574	+·027	·540	92·2	78·7	13·5	97·5	70·7	26·8	87·2	88·8	83·2	+0·7	76·2	81·1	81·5	79·6
	Saugor Island	25	·605	·522	·083	·570	+·020	·538	91·4	82·0	9·4	93·9	74·3	19·6	88·1	89·2	85·7	+1·0	78·5	82·8	83·3	81·5
	False Point	21	·625	·533	·092	·583	+·009	·546	90·1	79·9	10·2	96·7	72·3	24·4	87·4	87·7	83·9	+0·2	77·1	81·8	82·0	80·3
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·626	27·539	·087	27·592	+·014	·479	97·2	78·4	18·8	104·1	71·3	32·8	90·2	92·2	86·2	+4·3	70·7	73·4	73·6	72·6
	Darbhanga	166	29·439	29·326	·113	29·389	+·001	·505	93·0	79·3	13·7	101·3	71·5	29·8	87·3	91·7	81·9	+0·4	76·2	80·5	82·3	79·7
	Allahabad	309	·288	·180	·108	·236	+·032	·487	105·7	84·3	21·4	111·6	74·6	37·0	97·8	102·4	93·6	+3·0	73·2	77·6	77·5	76·1
Upper Sub-Himalayas.	Dehra Dun	2,233	27·405	27·323	·082	27·354	−·001	·479	92·9	74·0	18·9	100·5	64·9	35·6	84·7	90·5	83·0	−1·0	66·9†	71·0	72·7	70·2
	Roorkee	899	28·686	28·588	·098	28·632	+·012	·472	97·0	78·7	18·3	108·5	71·5	37·0	85·4	95·5	87·7	−2·2	70·8	74·9	75·7	73·8
	Meerut	738	·838	·757	·081	·789	+·025	·470	98·6	79·5	19·1	109·4	70·5	38·9	90·2	95·9	88·6	−2·0	71·8	75·7	76·1	74·5
	Lahore	702	·857	·763	·094	·804	+·031	·445	104·9	80·6	24·3	117·4	70·7	46·7	95·8	103·3	92·0	+0·8	71·2	76·6	77·5	75·1
	Ludhiana	812	·762	·669	·093	·719	+·029	·461	101·7	81·3	20·4	114·1	72·1	42·0	92·0	100·3	91·0	−0·2	72·3	74·3	75·4	74·0
N. W. Frontier Provinces Indus Valley and N.-W. Rajputana.	Peshawar	1,110	·463	·341	·122	·396	+·009	·441	106·0	78·4	27·6	117·5	63·9	48·6	96·0	104·1	91·3	+1·4	65·5	74·4	74·6	71·5
	Jacobabad	186	29·357	29·245	·112	29·295	+·036	·429	111·1	84·1	27·0	125·4	71·1	51·3	98·3	103·8	96·6	−0·5	78·1	88·0	92·7	86·3
	Kurrachee	30	·588	·505	·083	·547	+·011	·527	93·3	82·1‡	11·2	106·3	71·4	34·9	89·0	89·3	86·5‡	−0·3	78·9‡	82·0	82·3	81·1
E. Rajputana, C. India and Gujarat.	Jaipur	1,431	28·220	28·117	·103	28·166	+·033	·507	103·5	81·6	21·9	112·9	69·8	43·1	93·7	100·6	91·7	+1·1	70·6	75·5	76·0	74·0
	Udaipur	1,925	27·779	27·686	·093	27·733		·548	98·1	79·9	18·2	106·6	74·1	32·5	89·8	95·8	88·5		73·4	76·7	77·9	76·0
	Deesa	466	29·216	29·095	·121	29·160	+·037	·565	103·4	81·0	22·4	110·9	76·2	34·7	91·4	100·9	90·9	+1·1	73·3	77·0	76·8	75·9
	Jamnagar	61	·625	·535	·090	·580		·587	96·8	80·0	16·8	104·0	77·0	27·0	91·6	93·1	87·5		75·4	79·5	80·3	78·4
Deccan.	Belgaum	2,539	27·305	27·219	·086	27·266	+·035	·704	82·7	67·9	14·8	94·3	64·2	30·1	76·8	79·5	74·1	+1·5	66·9	70·5	70·7	69·4
	Sholapur	1,590	28·203	28·074	·129	28·148	+·034	·646	97·0	74·3‡	22·7	103·4	69·5	33·9	86·0	92·6	83·8‡	+1·9	69·5	73·1	73·0	71·9
	Akola	930	·799	·663	·136	·736	+·047	·590	103·6	80·7	22·9	112·4	75·7	36·7	93·3	99·6	90·3	+4·7	73·1	75·5	75·5	74·7
	Buldana	2,132	27·636	27·518	·118	27·582	+·044	·590	97·0	74·8	22·2	103·7	70·6	33·1	87·0	94·3	84·2	+3·6	68·0	71·9	72·0	70·6
	Khandwa	1,044	28·676	28·538	·138	28·612	+·044	·579	102·5	81·4	21·1	111·7	75·3	36·4	91·5	100·1	91·1	+4·3	71·9	75·5	75·8	74·4
	Nagpur	1,025	·666	·536	·130	·606	+·043	·551	105·4	82·9	22·5	113·6	75·1	38·5	93·6	100·0	91·9	+5·9	71·8	76·5	76·4	74·9
	Do. (Sanitary Commr.'s Office).	1,013	·681	·549	·132	·620		·552	106·4	83·7	22·7	115·6	75·5	40·1	95·6	102·2	94·0		73·0	77·0	77·3	75·8
	Hyderabad (Deccan).	1,690	·092	27·973	·119	·040	+·149	·629	97·1	76·5	20·6	106·8	70·1	36·7	87·6	93·4	85·9	+2·7		74·5	76·5	
West Coast.	Bombay	37	29·753	29·673	·080	29·712	+·043	·688	89·9	81·0	8·9	94·9	75·4	19·5	86·0	87·0	84·9	+1·7	77·1	79·6	80·1	78·9
	Karwar	44	·819	·736	·073	·781	+·037	·757	85·8	76·8	9·0	91·4	72·9	18·5	82·4	83·9	81·0	+0·9	74·6	76·9	77·5	76·3

† Mean of 26 days. ‡ Mean of 42 days

II.

at 64 Stations in India, Burma, etc., for June, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·850‡	·876	·856	·927	+·011	90‡	85	79	85	− 1	7·2	7·1	7·2	−0·3						5	27	24	3	S 64° W	S 43° W	86	79	337°	231	21·15	4·32	Port Blair	Burma Coast and Bay Islands.
·863	·940	·907	·903	+·001	94	82	84	87	− 2	7·6	8·0	7·8	−0·9											S 23° W		71		123			Rangoon	
·811	·952	·930	·898	+·010	86	84	84	85	− 1	7·0	7·6	7·3	−0·8	2		2	1		5	24	26	6	S 67° W	S 35° W	70	74	262°	216	18·74	5·34	Diamond Island	
·860	·973	·969	·934	+·016	90	82	82	85	− 1	7·4	8·2	7·8	−0·4											S 34° W		90		?		15·74	5·70	Cocos Island	
	1·006	1·007				89	87			8·3	8·1	8·2	+0·7				4	14	28	12	2		S 4° E	S 3° E	78	57	62°	97	30·41	3·53	Akyab	
·863	·947	·949	·920	+·051	96	84	82	87	+ 1	8·0	8·1	8·1	+0·5		1	1	4	15	20	14	4	1	S 1° E	S 21° E	63	60	171°	160	27·85	5·94	Chittagong	Bengal and Orissa.
·878	·982	·980	·947	−·010	89	76	73	79	− 4	8·1	7·4	7·8	+0·7	2	2	3	7	9	20	14	1	2	S 6° E	S 3° E	51	59	139	142	5·47	1·01	Calcutta (Alipore)	
·933	1·053	1·062	1·016	−·003	85	79	77	80	− 3	7·8	8·0	7·9	+0·2		2	2	4	8	31	12	1		S 2° E	S 12° W	70	68	426	372	5·87	1·77	Saugor Island	
·901	1·015	1·020	·979	+·010	88	78	77	81	− 2	7·6	7·2	7·4	+0·2	1	1			6	24	25	2	1	S 20° W	S 37° W	78	64	284°	303	2·95	0·55	False Point	
·658	·614	·598	·623	−·069	68	44	42	51	−15	7·0	9·2	8·1	+0·6		11	5	4	3	9	2	9	17	N 42° W	S 38° W	32	15	209°	225	2·38	1·21	Hazaribagh	Gangetic Plain and Chota Nagpur.
·875	·952	·979	·935	+·023	86	74	67	76	0	5·9	4·4	5·2	+0·5	2	2		25	24	1	1	2	3	S 69° E	S 85° E	67	70	97	148	5·63	1·96	Darbhanga	
·673	·673	·610	·652	−·117	59	38	31	43	−13	1·7	3·4	2·6	−2·1	1	4	8	10	2	2	1	17	15	N 35° W	N 9° W	33	15	266°	166	1·17	0·75	Allahabad	
·574†	·594	·586	·585	−·065	68†	51	43	54	− 9	2·3	3·0	2·7	−1·7	5				4	6	13	24	8	S 71° W	S 53° W	63	16	52	40	3·70	1·69	Dehra Dun	Upper Sub-Himalayas.
·654	·675	·622	·650	−·006	68	51	39	53	+ 1	1·7	1·2	1·5	−1·8	10	1		4	17	5		5	18	S 25° W	S 10° E	7	17	106	95	7·41	2·83	Roorkee	
·687	·703	·639	·676	−·017	70	51	39	53	+ 1	5·6	5·1	5·4	+2·0	11	1	1	6	12		9	13	7	S 49° W	N 16° W	20	10	62°	64	5·75	1·73	Meerut	
·615	·658	·597	·633	+·016	63	41	30	44	+ 4	1·3	2·1	1·7	−1·3	6	5	2	6	13	6	7	11	4	S 11° W	N 19° E	18	6	87	88	0·92	0·45	Lahore	
·677	·621	·552	·617	−·037	64	43	31	46	− 3	2·0	1·7	1·9	−1·3	3		4	3	24	2	4	9	11	S 15° E	S 64° W	20	8	82°	64	1·69	0·91	Ludhiana	
·475	·591	·495	·520	+·001	51	37	24	37	− 1	0·8	1·9	1·4	−0·8	15	7	17	7	2	2	1	4	5	N 33° E	N 41° E	37	31	89°	113	0·52	0·35	Peshawar	N.-W. Frontier Province Indus Valley and N.-W. Rajputana.
·891	1·177	1·295	1·121	+·462?	76	66	56	66	+26?	1·4	1·7	1·6	+0·7	10			7	25	15	3			S 31° E	S 33° E	69	45	129°	125	0·27	0·12	Jacobabad	
·948‡	1·005	1·010	·989	+·030	86‡	74	74	78	+ 3	4·0	3·5	3·8	−0·5				3	5	3	27	22		S 53° W	S 62° W	72	85	416°	423	3·35	1·50	Kurrachee	
·613	·651	·589	·618	−·049	59	42	32	44	− 6	2·1	3·1	2·8	−1·7			1	1	1	3	20	30	4	S 72° W	N 66° W	78	45	190	165	1·40	0·83	Jaipur	
·740	·764	·746	·750		73	54	44	57		2·6	3·4	3·1		2	1		1	1	6	24	20	4	S 63° W		74		243°		0·67	0·55	Udaipur	E. Rajputana, C. India and Gujarat.
·745	·740	·597	·694	−·038	70	51	32	51	− 3	3·3	3·6	3·5	−1·5				1	4	7	33	15		S 46° W	S 42° W	80	70	432	397	0·67	0·44	Deesa	
·821	·841	·861	·842		80	57	55	64		3·4	2·6	3·0			1		2	3	11	20	20	3	S 53° W		67		597*		0·22	0·19	Jamnagar	
·650	·668	·644	·654	−·012	95	73	65	78	− 4	7·4	6·1	6·8	−1·1		1		1		3	24	25	6	S 72° W	S 62° W	79	78	491	556	8·13	1·78	Belgaum	Deccan.
·667‡	653	·567	·627	−·005	79‡	53	40	57	− 3	5·9	7·4	6·7	−0·5			3			23	11	23		N 87° W	S 86° W	69	70	463*	316	4·84	2·46	Sholapur	
·716	·644	·560	·640	−·055	69	42	32	48	−10	4·2	5·5	4·9	−1·7	2	1	2	1		3	4	15	32	N 63° W	N 68° W	71	72	319*	223	0·47	0·25	Akola	
·601	·596	·506	·568	−·096	71	47	33	50	−15	2·1	3·3	2·7	−3·6	1	4	1			4	9	23	18	N 82° W	N 73° W	70	66	316*	253	2·15	1·86	Buldana	
·667	·678	·584	·643	−·071	62	46	32	47	−13	3·4	5·6	4·5	−1·5	1	2	3	1	1		4	22	26	N 65° W	N 79° W	73	72	338	234	0·76	0·46	Khandwa	
·644	·697	·614	·652	−·066	58	46	34	46	−14	2·3	6·2	4·3	−2·8		1	1	1			8	23	14	N 81° W	N 83° W	57	52	321§	240	1·78	0·75	Nagpur	
·679	·697	·626	·667		60	42	31	44		2·3	5·2	3·8						6		41		13	S 58° W		70		83*		1·85	1·03	Do. (Sanitary Commr.'s Office)	
	·693	·707				53	47			5·1	6·7	5·9	0	2							52	6	N 86° W	N 84° W	94	70	214*	217	2·18	0·86	Hyderabad (Deccan)	
·875	·932	·939	·915	−·009	83	75	73	77	− 5	6·1	5·6	5·9	−1·9					3	12	13	27	5	S 62° W	S 64° W	70	65	318	376	9·77	4·25	Bombay	West Coast.
·828	·852	·858	·846	−·004	90	77	75	81	− 2	6·2	5·3	5·8	−1·3	3	2					20	22	13	S 56° W	S 73° W	91	74	142	128	39·09	6·14	Karwar	

§ Mean of 23 days.

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 64 Stations

Meteorological Province	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	28·900	28·788	·112	28·855			96·5	72·4	24·1	100·7	69·5	31·2	87·8	89·9	82·7		69·2	74·5	75·1	72·8
	Salem	940	·916	·790	·126	·866	+·004	29·725	96·3	76·2	20·1	100·2	71·0	29·2	86·7	93·6	85·0	+2·3	73·1	76·5	78·2	75·9
	Chitaldroog	2,405	27·451	27·355	·096	27·412	+·038	·707	88·4	70·7	17·7	97·7	68·7	29·0	80·9	83·9	78·4	+2·2	68·0	71·1	71·3	70·1
	Bangalore	3,021	26·890	26·791	·099	26·852	+·030	·720	87·0	67·9	19·1	91·3	64·9	26·4	78·9	84·2	76·7	+2·5	65·5	69·6	69·7	68·3
	Hassan	3,091	·837	·754	·083	·807	+·039	·764	81·1	65·9	15·2	89·1	63·2	25·9	76·6	78·7	72·9	+1·6	64·6	69·1	69·2	67·6
	Mysore	2,518	27·387	27·290	·097	27·339	+·033	·742	87·8	68·4	19·4	94·0	65·2	28·8	80·4	83·1	76·9	+1·9	66·7	70·2	70·5	69·1
	Madras	22	29·771	29·662	·116	29·727	+·030	·676	99·4	82·5	16·9	107·8	74·5	33·3	93·5	92·2	88·6	+1·3		78·5	80·2	78·6
	Bellary	1,475	28·352	28·243	·109	28·307	+·038	·700	94·7	75·7	19·0	101·4	69·8	31·6	84·6	91·1	83·4	+0·5	70·0	74·2	75·6	73·2
	Waltair	226	29·453	29·360	·093	29·407		·569	94·0	81·8	12·2	103·0	73·7	29·3	89·0	88·7	86·6		72·3	78·8	79·5	76·9
Hill Station, Baluchistan.	Quetta	5,502	24·492	24·411	·081	24·444	+·007		91·6	61·0	30·6	97·7	52·3	45·4	83·9	88·3	75·5	+1·3	52·9	63·0	62·3	59·4
Hill Stations, Northern India.	Leh	11,503	19·696	19·609	·087	19·659	+·020		67·7	42·7	25·0	77·6	34·9	42·7	59·9	64·7	54·1	−1·8	37·1	45·6	43·6	43·8
	Srinagar	5,204	24·718	24·628	·090	24·666	−·023		82·7	57·4	25·3	91·3	52·7	38·6	70·4	80·1	69·4	−1·1	55·0	66·7	75·6	65·8
	Kailang	10,087	20·890	20·823	·067	20·869	†		71·7	43·7	28·0	78·3	37·0	41·3	61·1	65·5	55·5	−0·1	40·8	49·5	50·2	46·8
	Simla (Ridge)	7,224	23·029	22·995	·034	23·005	+·015		72·5	59·6	12·9	83·5	51·2	32·3	67·1	69·5	65·8	−2·1	53·7	57·4	59·3	56·8
	Chakrata	7,022	·192	23·155	·037	·167	+·011		72·3	59·7	12·6	79·3	50·3	29·0	68·2	69·1	65·7	−1·4	54·5§	58·9	59·7	57·7
	Ranikhet	6,069	·984	·923	·061	·942	+·005		78·3	62·8	15·5	84·6	54·0	30·6	73·0	74·6	70·2	−0·3	57·7	62·2	63·0	61·0
	Muktesar	7,600	22·772	22·714	·058	22·744			75·3	57·3	18·0	84·6	51·1	33·5	68·1	70·3	65·0		53·0	59·0	61·0	57·7
	Katmandu	4,388	25·434	25·331	·103	25·381	†		82·9	65·5	17·4	88·4	60·0	28·4	77·2	78·3	73·1	−1·6	64·5	69·2	69·7	67·8
	Darjeeling	7,376	22·912	22·859	·053	22·884	−·009		65·0	56·0	9·0	68·5	51·4	17·1	61·7	62·7	59·9	+0·1	55·4	59·5	60·6	58·5
Hill Stations, Central India.	Mount Abu	3,915	25·915	25·853	·062	25·889	+·043		83·4	68·6	14·8	91·2	64·8	26·4	75·4	81·8	75·6	+0·4	62·1	67·1	67·7	65·6
	Pachmarhi	3,528	26·320	26·230	·090	26·280	+·048		93·7	74·6	19·1	101·2	67·2	34·0	82·9	88·6	82·7	+4·8	66·4	69·9	70·0	68·8
	Chikalda	3,642	·209	·123	·086	·171	+·043		89·8	70·1	19·7	98·1	66·1	32·2	81·2	87·8	79·3	+4·0	66·0	69·3	71·1	68·8
Hill Stations, South India.	Kodaikanal	7,688	22·820	22·764	·056	22·790			66·2	53·9	12·3	70·3	51·0	19·3	62·1	60·7	58·4		49·5	56·3	57·1	53·9
	Ootacamund		23·046	·988	·058	23·017			64·4	51·8	12·6	69·8	48·9	20·9	61·3	60·8	57·2		50·6	56·4	56·8	54·6
Extra India.	Aden§§	94	29·618	29·539	·109	29·590	−·005	·613	95·0	84·9	10·1	98·1	79·2	18·9	90·3	93·3	89·7	+1·6	76·6	81·5	79·8	79·3
	Perim	201	·544	·433	·105	·488	+·011	·617	94·7	84·8	9·9	100·1	74·0	26·1	90·3	92·1	89·1	−0·1	80·4	83·4	82·9	82·2
	Minicoy	7	·907	·858	·049	·879		·811	87·2			90·6			83·8	83·4				79·2	78·3	
	Zanzibar	73	30·056	·956	·100	30·006	−·029	30·006	82·6	74·8	7·8	84·4	73·5	10·9	78·3	81·8	78·5	+1·0	70·6	74·3	73·9	72·9
	Port Victoria (Seychelles)	15	29·988	·910	·078	29·949	+·002	29·888	81·9	73·9	8·0	83·9	67·9	16·0	80·3	81·4	77·8	−0·9	72·3	75·5	75·4	74·4
	Mauritius (Pamplemouses)	181				·926	−·054	30·057				83·1	56·8	26·3			70·3	+0·8				

§§ Observation of 28 days. † Wind variable 2. § Mean of 28 days. †† Wind variable 1.

II—*concluded.*

in India, Burma, etc., for June, 1902—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction — Number of winds from										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·672	·677	·676	·675		85	51	49	60		4·1	6·8	5·5		5	6	8	4	3	13	9	4	6	S 28° W		10		100*		1·51	0·53	Periyakulam†	South India.
·775	·780	·766	·774	+·013	86	61	49	65	− 1	5·1	7·2	6·2	+0·2	28	4				4	15	7	2	S 65° W	S 54° W	35	76	56*	113	5·19	4·55	Salem	
·654	·640	·615	·636	+·002	87	61	55	68	− 3	5·9	7·8	6·9	−1·1			1	1		1	19	27	11	S 84° W	S 76° W	80	77	240*	261	1·54	0·58	Chitaldroog	
·602	·620	·557	·593	−·026	88	63	48	66	− 7	5·9	6·9	6·4	+0·4	1		1			2	25	24	7	S 73° W	S 72° W	80	87	231*	209	2·45	2·35	Bangalore	
·596	·627	·606	·610	+·002	93	69	63	75	− 4	7·8	7·7	7·8	−0·5				1		1	18	28	12	S 84° W	S 80° W	82	82	101*	125	2·44	0·63	Hassan	
·637	·618	·591	·615	−·013	91	59	53	68	− 6	8·0	8·5	8·3	+0·5	2	1	1	1	1		20	29	5	S 78° W	S 75° W	75	77	261*	365	1·60	0·73	Mysore	
	·776	·873	·844	+·029		50	59	63	− 2	4·6	6·1	5·4	−0·9		2	1	6	10	6	7	19	9	S 62° W	S 36° W	32	61	209	212	0·39	0·15	Madras	
·667	·720	·692	·693	+·043	75	60	48	61	+ 3	4·9	6·0	5·5	−2·1	3	2					17	25	13	S 89° W	S 86° W	77	78	259*	251	4·34	1·75	Bellary	
·669	·853	·888	·803		62	63	66	64		7·3	7·1	7·2				1	1	4		54			S 40° W		87		163		2·45	1·20	Waltair	
·325	·360	·291	·325	−·031	59	31	23	38	− 2	0·4	2·0	1·2	+0·1	33	1	2	1	4	3	3	10	3	S 7° W	N 75° W	17	39	50*	84	0·48	0·46	Quetta	Hill Station, Baluchistan.
·177	·185	·208	·190	+·018	64	36	35	45	+ 7	4·9	5·6	5·3	+0·5		5	10	4	5	9	16	10	1	S 34° W	S 81° W	22	31	60	57	0·15	0·07	Leh	
·412	·623	·839	·625	+·068	86	83	82	84	+11	3·0	3·6	3·3	−0·5	15	5	2	1	11	9	3	7	7	S 29° W	S 69° E	13	5	79*	86	3·01	0·96	Srinagar	Hill Stations, Northern India.
·232	·256	·233	·240	−·009	81	48	40	56	+ 1	4·5	6·3	5·4	+0·1		2		3	4	13	14	15	9	S 56° W	S 63° W	52	65	44	49	0·86	0·18	Kaifang	
·355	·374	·404	·378	−·030	72	58	58	63	0	4·3	5·7	5·0	−0·9	2	16		1	9	6	4	5	16	N 44° W	N 12° W	28	18	132	97	3·52	1·19	Simla (Ridge)‡	
·372§	·404	·417	·398	−·018	73§	59	60	64	− 3	3·4	5·7	4·6	−0·5	10	3	1		6	40				S 7° E	S 73° W	68	52	241	153	3·73	1·10	Chakrata	
·427	·448	·455	·443	−·029	75	57	54	62	− 4	3·4	3·3	3·4	−2·1	3	3	3	3	1	2	12	22	11	N 87° W	S 67° W	53	46	107*	84	4·49	1·73	Ranikhet	
·363	·409	·443	·405		77	60	61	66		3·9‖	4·2‖	4·1		1	2	4	2	15	3	9	1	23	N 82° W		13		114*		2·77	0·86	Muktesar	
·602	·628	·634	·621	−·009	95	68	66	76	+ 1	6·5	6·8	6·7	+0·5			6	18	1	1	9	10	15	N 30° W	N 86° W	13	23	26	31	12·27	1·98	Katmandu	
·435	·489	·510	·478	−·014	96	89	89	91	− 3	7·9	8·0¶	8·0	−0·8	6		2	5	13	16	18	9	1	S 15° W	S 9° W	45	8	131*	124	23·10	2·97	Darjeeling	
·496	·570	·516	·527	−·046	72	67	50	63	− 5	5·2	4·4	4·5	−0·4					3	12	34	9	2	S 41° W	S 49° W	82	67	400*	254	2·36	1·47	Mount Abu	Hill Stations, Central India.
·554	·578	·514	·549	−·051	66	53	40	53	−13	3·2	4·5	3·9	−2·7	6	7	2		1		1	18	25	N 54° W	N 80° W	70	60	306*	206	1·74	0·46	Pachmarhi	
·595	·582	·569	·582	−·017	82	56	45	61	−11	4·3	5·8	5·1	−1·8	20	12				1	1	5	21	N 39° W	N 45° W	54	60	294*	234	2·73	0·98	Chikalda	
·311	·401	·432	·374		74	72	82	76		6·9	8·4	7·7			4	6	2	6	5	4	5	22	N 48° W		28		313		3·67	1·10	Kodaikanal**	Hill Stations, South India.
·358	·407	·425	·397		92	75	80	82		7·2	8·5	7·9		19	1	1	1	2		10	17	9	S 89° W		45		86*		5·67	1·05	Ootacamund	
·813	·966	·842	·874	+·028	68	67	54	63	+ 4	3·2	1·6	2·4	+1·1		1	14	6	10	9	14	2		S 37° E	S	34	55	‡* 355	216	0	0	Aden	Extra India.
·977	1·058	1·009	1·015	+·171	82	74	67	74	+13	0·7	1·6	1·2	−0·6		2	8	8	7	1	7	8	19	N 37° W	N 39° W	22	42	282*	347	1·35	1·35	Perim	
	·938	·903				81	79			8·6	8·4	8·5			3	1		1	6	19	20	10	S 77° W		67		287*		14·73	3·47	Minicoy	
·696	·793	·730	·740	+·030	80	82	67	76	0	5·8	4·4	5·1	+0·6				1	19	28	12			S 7° E	S 4° E	84	86	196*	216	1·00	0·40	Zanzibar	
·774	·821	·807	·801	+·051	92	79	75	82	+ 6	5·6	5·8	5·7	−1·4			1	4	28	23	3	1		S 26° E	S 21° E	82	79	264	278	0·84	0·20	Port Victoria (Seychelles).	
			·572	+·036				75	0																		238	274	1·65	0·80	Mauritius (Pamplemouses).	

‡ Mean of 26½ days. ‖ Mean of 26 days. ¶ Mean of 25 days. ** Wind variable 6. * Corrected.

TABLE III.—Barometric changes during 24 hours preceding 8 A.M. of date, in June 1902.

TABLE IV.—Variation of pressure from normal, in June 1902.

Table III.—Barometric changes during

STATION.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tiflis	+·156	+·040	−·060	−·084	−·084	+·284	−·060	−·124							−·120
Baku	+·124	−·032	−·120	−·036	−·132	+·360	−·104	−·076							−·028
Tashkent	+·021	−·176			−·232	−·124	+·544	−·044	−·116	−·164	−·124	−·060	+·016		
Kashgar	+·020	+·020	−·090	0	+·070	−·090	−·080	+·150	−·030	+·070	−·040	−·070	−·04	−·080	−·080
Gilgit	−·002	+·035	−·019	−·036	+·030	+·004	−·014	−·069	−·099	+·039	−·042	+·038	+·031	−·045	−·032
Barnaul	+·120	+·212													
Omsk	+·040	+·416	−·368			−·256	+·076	+·336	−·040	+·048	+·260	−·176	+·036		
Tomsk					+·016				+·356	−·124	+·200				
Trkhutsk															
Chitral	+·025	+·025	−·075	0	−·100	+·050	−·025	+·075	−·150	−·035	+·035	−·010	−·040	0	0
Teheran	−·100	−·050	+·050	−·050	−·200	+·100	+·200	+·010			−·110	−·070	+·030	−·050	0
Ispahan	−·070	0	+·040	−·010	−·130	−·020	+·200	0	−·020	−·160	−·120	−·100	+·100	−·110	−·020
Baghdad	+·067	−·006	−·075	−·117	+·108	+·011	−·077	+·011	+·106	+·019	−·046	−·178	−·023	−·049	+·009
Bushire	+·033	−·018	−·001	−·027	−·056	−·004	−·078	+·050	−·026	−·083	+·012	+·018	−·036	−·034	−·034
Bussorah	−·084	+·033	−·035	+·023	−·099	+·114	+·019	0	−·076	−·033	−·024	−·038	+·055	−·151	−·002
Bahrein	−·008	−·012	+·020				−·040	+·021	−·034	−·050	+·033	−·030	−·022	−·010	−·069
Muscat	+·007	+·006	+·066	−·031	−·123	−·065	+·058	+·036	−·101	−·060	−·041	−·042	+·049	−·069	+·005
Jask	−·019	+·014	+·061	−·060	−·152	−·051	+·089	+·039	−·091	−·050	−·067	−·047	+·005	−·041	+·012
Perim	+·040	−·018	−·026	+·014	−·009	−·001	+·053	+·035	−·050	−·063	−·011	−·016	+·009	−·029	−·005
Aden	+·082	−·007	−·068	+·001	+·031	+·005	+·014	+·037	−·068	−·046	−·007	−·034			−·014
Zanzibar	−·004	+·013	+·017	+·035	−·016	−·054	+·020	+·010	−·011	−·030	+·019	0	+·019	+·002	−·028
Seychelles	+·019	0	−·006	+·018	+·020	−·019	−·005	+·022	−·033	+·001	+·002	+·028	+·022	−·014	−·026
Port Blair	−·018	−·005	−·008	−·019	−·068	−·046	+·013	+·064	−·036	−·037	+·032	0	+·049	+·016	−·004
Penang	−·031	+·007	−·012	+·047	−·047	−·031	−·004	+·025	+·003	−·009	−·008	+·010	+·006	+·039	+·007
Singapore	−·033	+·017	−·010	+·061	−·023	−·061	+·020	−·015	+·011	+·004	−·027	+·029	+·010	−·010	+·030
Dodabetta	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Table IV.—Variation of pressure from

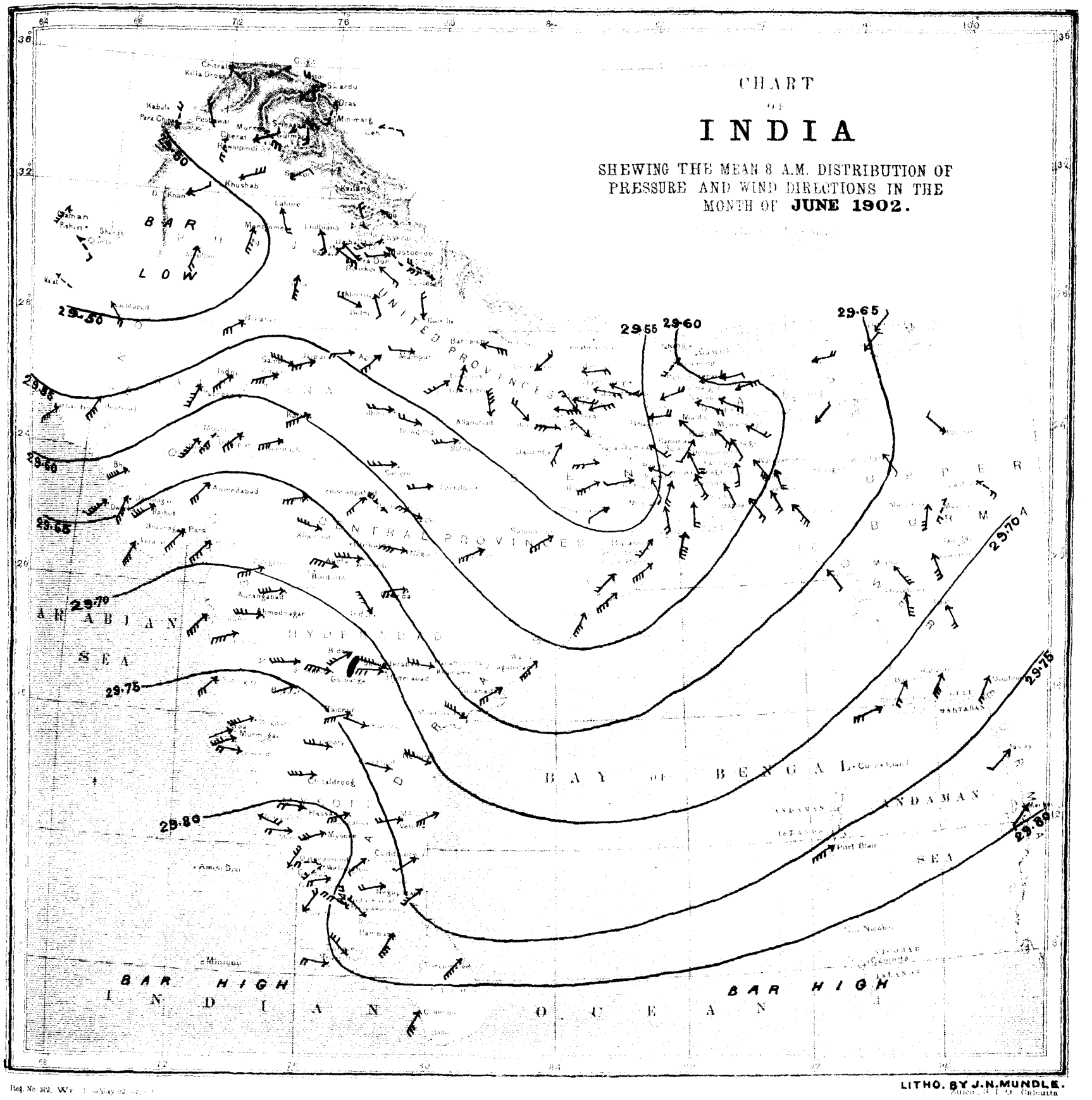
STATIONS.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tiflis	+·104	+·144	+·084	0	−·084	+·200	+·140	+·016		−·032		+·040		+·004	−·116
Baku	+·128	+·096	−·024	−·060	−·192	+·168	+·064	−·012		−·116		−·120		−·196	−·224
Tashkent	+·324	+·148		+·232	0	−·124	+·420	+·376	+·336	+·172	+·048	−·012	+·004		−·088
Barnaul	−·232	−·020		−·180			−·376		+·308		+·372				−·092
Omsk	−·348	+·068	−·300		−·184	−·440	−·364	−·028	+·016	+·064	+·324	+·148	+·164		+·004
Tomsk		−·116		−·292	−·276			−·140	+·304	+·180	+·380		+·064		
Trkhutsk		−·196		+·024			−·164				−·064				+·048
Baghdad	+·058	+·061	−·015	−·144	−·035	−·021	−·099	−·078	+·039	+·030	+·050	−·121	−·143	−·187	−·186
Bushire	+·018	+·007	+·013	+·047	−·004	0	−·070	−·012	−·030	−·105	−·085	−·060	−·089	−·117	−·145
Muscat	+·019	+·032	+·106	+·085	−·006	−·079	−·039	+·039	−·050	−·099	−·120	−·162	−·106	−·119	−·160
Jask	+·006	+·028	+·098	+·048	−·094	−·135	−·037	+·040	−·069	−·109	−·142	−·181	−·168	−·201	−·182
Perim	−·005	−·016	−·037	−·018	−·024	−·021	+·031	+·071	+·025	−·087	−·045	−·061	−·051	−·079	−·083
Aden	−·017	−·019	−·094	−·079	−·047	−·040	+·007	+·047	−·019	−·064	−·068	−·101		−·098	−·110
Zanzibar	−·047	−·036	−·021	+·012	−·006	−·063	−·046	−·039	−·053	−·085	−·068	−·071	−·054	−·053	−·081
Seychelles	+·005	+·002	−·003	+·015	−·015	−·015	−·005	+·019	−·013	−·012	−·013	+·014	+·035	+·018	−·013
Port Blair	+·065	+·063	+·057	+·090	−·027	−·071	−·057	+·007	−·029	−·035	−·033	−·032	+·017	+·033	+·029

24 hours preceding 8 A.M. of date, in June 1902.

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	STATION.
+·036	+·056	—·100	+·028	+·016			—·140	+·140	—·064	+·016	+·012	+·120			Tiflis.
+·102	+·012	—·016	—·016	+·060			—·068	—·088	+·116	+·044	0	+·072			Baku.
—·012	—·012	+·080	—·012	+·012	0	+·012	—·010	—·004	+·032	+·140			—·056	—·104	Tashkent.
+·020	—·020	+·020	0	+·220	—·040	—·040	—·080	—·060	+·120	+·020	+·020	—·060	+·040	+·060	Kashgar.
+·019	—·030	+·044	—·023	+·008	+·070	+·077	—·104	—·115	+·213	+·107	+·004	—·155	+·039	—·120	Gilgit.
		+·048									—·244	+·784			Barnaul.
+·244	—·016	—·172			+·120	—·204	+·088						—·453		Omsk.
		—·020									—·004	+·380	—·188		Tomsk.
															Trkhutsk.
—·005	+·055	0	0	—·050	+·050			+·155	—·030			0	—·100	+·025	Teheran.
+·025	+·050	+·075	+·025	+·025	—·050	+·010	—·010	—·030	+·050	+·130	+·020	—·040	—·030	0	Chitral.
+·030	+·150	—·010	+·020	+·040	—·050	+·020	0	—·030	+·040	+·120	+·030	—·070	—·060	+·060	Ispahan.
+·033	—·016	—·002	+·044	+·096	+·039	—·003	0	—·019	+·023	+·027	+·024	—·111	—·050	+·079	Baghdad.
—·014	+·014	+·034	+·042	+·089	+·006	+·038	—·016	—·028	—·006	+·019	—·002	—·006	—·003	+·027	Bushire.
—·020	—·003	+·029	+·023	+·084	+·030	+·036	+·003	—·022	—·025	+·034	—·015	—·020	+·014	0	Busso rah.
—·014	—·015				+·009	+·070	—·043	—·042	—·001	+·033	+·023	—·020	+·010	—·021	Bahrein.
—·006	+·098	+·058	+·037	+·055	—·010	+·023	—·007	—·008	—·052	+·051	+·069	—·041	—·050	—·045	Muscat.
—·003	—·006	+·147	+·036	+·056	—·017	+·029	—·009	+·010	—·072	+·051	+·140	—·051	—·050	—·076	Jask.
+·040	—·031	+·084	—·001	+·057	—·017	+·048	—·042	+·042	—·058	+·005	+·010	—·008	+·012	+·037	Perim.
+·028	+·028	+·010	+·026	+·055	—·007	+·033	—·017	+·004	—·052	0	+·033	+·011			Aden.
+·017	+·019	+·017	—·016	+·006	+·003	+·040	+·019	—·021	—·046	—·047	+·110	—·003	—·010	+·012	Zanzibar.
+·051	—·008	+·003	+·011	+·011	+·013	+·035	—·005	—·033	—·026	+·009	+·019	—·018	—·004	+·012	Seychelles.
—·008	+·048	+·011	+·020	—·002	—·033	—·004	—·040	—·064	+·025	+·083	+·012	—·037	—·026	+·014	Port Blair.
—·008	+·034	—·028	+·046	—·015	—·025	+·040	—·044	—·042	—·012	+·053	—·027	+·002	—·056	—·009	Penang.
+·016	+·002	—·007	+·007	0	+·005	+·033	—·046	—·010	—·018	+·057	—·025	+·002	—·003	—·005	Singapore.
						+·007	—·021	—·033	+·026	+·002	—·009	—·037	—·006	+·018	Dodabetta.

normal in June 1902.

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	STATION.
—·080	—·024	—·124	—·096	—·080		+·100	—·040	+·100	+·036	+·052	+·064	+·184			Tiflis.*
—·132	—·120	—·156	—·152	—·092		0	—·068	—·156	—·040	+·004	+·004	+·076			Baku.*
—·100	—·112	—·032	—·044	—·032	—·032	+·028	—·012	—·016	+·016	+·156		+·152	+·096	—·008	Tashkent.*
	+·256	+·304								—·148	—·392	0		—·023	Barnaul.*
+·248	+·232	+·060		+·024	+·144	—·008	+·060					+·252	—·204		Omsk.*
	+·300	+·230		+·044		0				+·064	+·060	+·140	+·252		Tomsk.*
		—·024				—·008				+·056			+·408		Trkhutsk.*
—·159	—·178	—·203	—·169	—·078	—·035	—·029	—·018	—·023	+·008	+·049	+·093	—·004	—·047	+·045	Baghdad.
—·153	—·133	—·091	—·047	+·047	+·058	+·100	+·083	+·064	+·062	+·084	+·086	+·083	+·083	+·113	Bushire.
—·162	—·060	+·001	+·041	+·098	+·090	+·115	+·109	+·102	+·051	+·103	+·142	+·151	+·060	+·055	Muscat.
—·179	—·179	+·173	+·014	+·074	+·031	+·064	+·058	+·069	—·002	+·050	+·191	+·141	+·092	+·015	Jask.
—·042	—·073	+·010	+·008	+·014	+·047	+·092	+·049	+·050	+·030	+·033	+·041	+·032	+·043	+·079	Perim.
—·080	—·052	—·011	+·016	+·072	+·065	+·100	+·084	+·089	+·088	+·039	+·073	+·085		+·093	Aden.
—·069	—·052	—·036	—·014	—·050	—·048	—·009	+·008	—·014	—·061	—·109	0	—·001	—·015	—·004	Zanzibar.
+·033	+·018	+·015	+·019	+·020	+·024	+·056	+·049	+·016	—·012	—·005	+·016	—·003	—·011	—·004	Seychelles.
+·021	+·068	+·079	+·098	+·096	+·062	+·057	+·016	—·049	—·025	+·057	+·068	+·029	+·002	+·015	Port Blair.



Reg. No. 382. W. 1.—May 02.

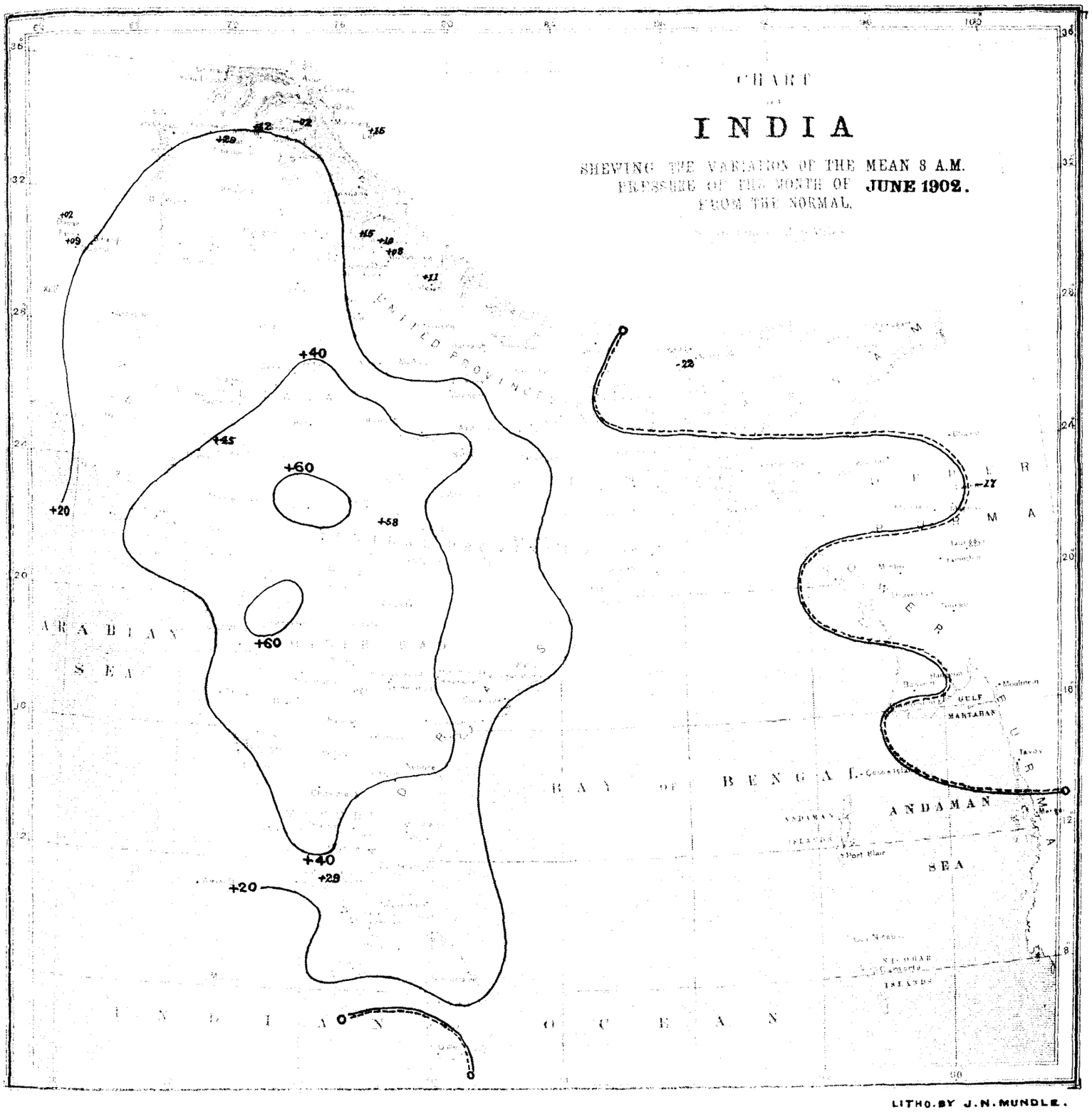
LITHO. BY J.N.MUNDLE. Survey of India Office Calcutta

Explanation.

The lines of the above Chart represent isobars or lines of equal barometric pressure, and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of ·05 inch. The isobars in the Bay of Bengal are filled in by means of the shore observations, and by comparison with the ordinary or normal distribution of pressure as given in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant *Meteorological Reporter to the Government of India*, and published by the Meteorological Department. Hence they have not the same validity as the isobars in the land area of India itself, but it is probable they deviate very little from the actual.

The mean 8 a.m. wind directions of the month are shewn by means of arrows flying with the wind, and are calculated by means of Lambert's formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0 to 2 miles per hour		one feather added to the wind arrow
,, ,,	2 to 5 ,, ,, ,,		two feathers ,, ,, ,, ,,
,, ,,	5 to 10 ,, ,, ,,		three ,, ,, ,, ,, ,,
,, ,,	10 to 20 ,, ,, ,,		four ,, ,, ,, ,, ,,
	over 20 ,, ,, ,,		five ,, ,, ,, ,, ,,



LITHO. BY J.N. MUNDLE.

Explanation.

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation of two hundredths of an inch or 020". The numbers are given in thousandths of an inch, 20 representing 020" or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other, one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

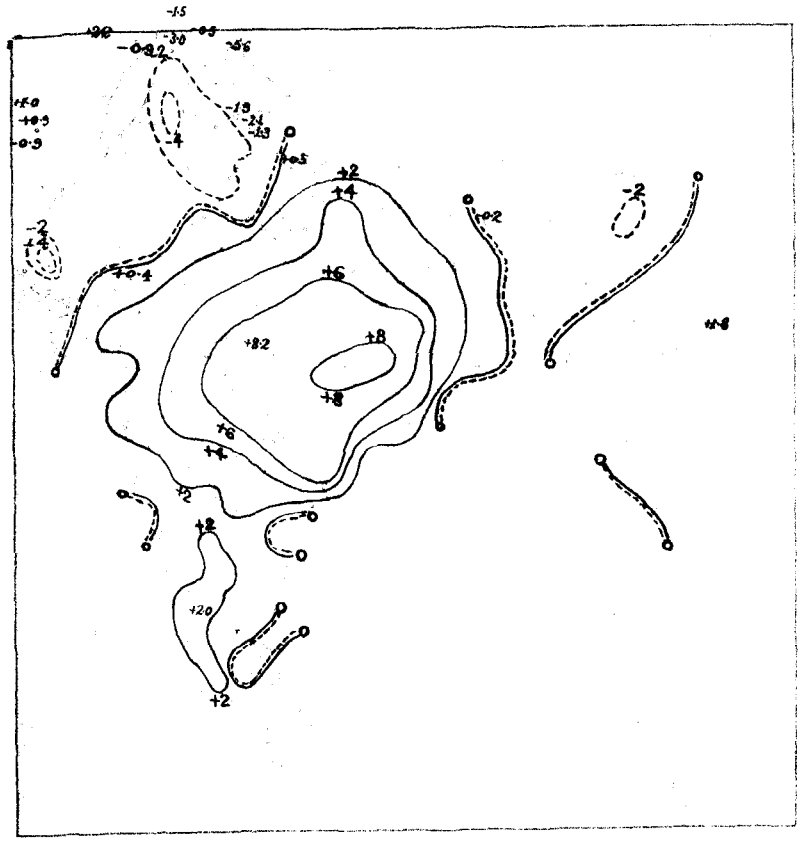
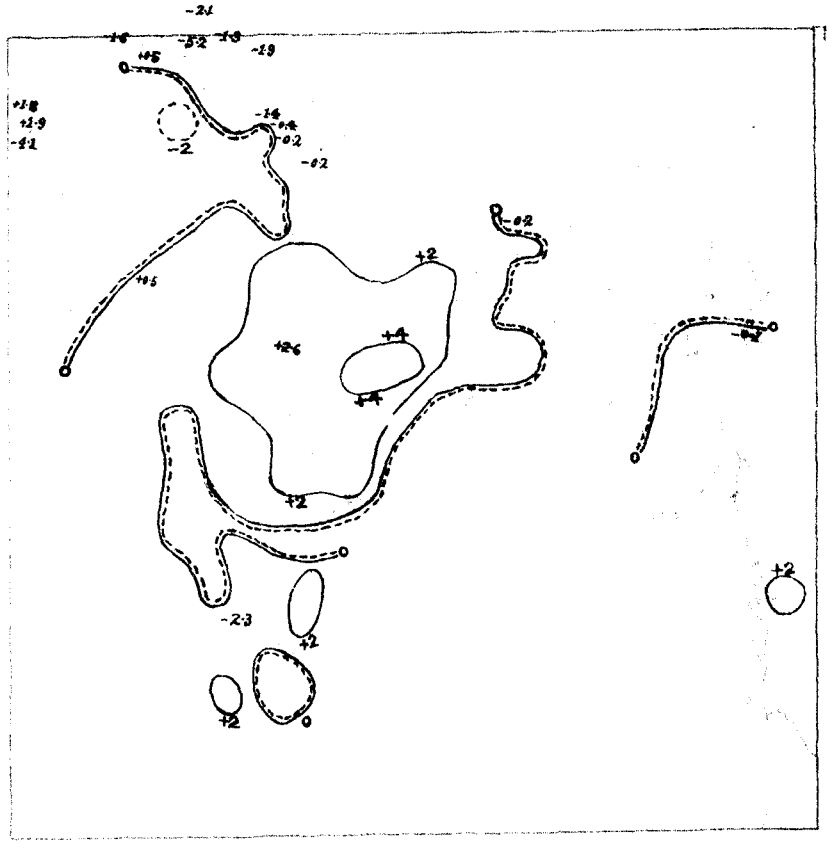


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous Lines indicate that the mean maximum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

CHART SHEWING THE VARIATION OF THE MEAN DAILY TEMPERATURE OF THE MONTH FROM THE NORMAL.

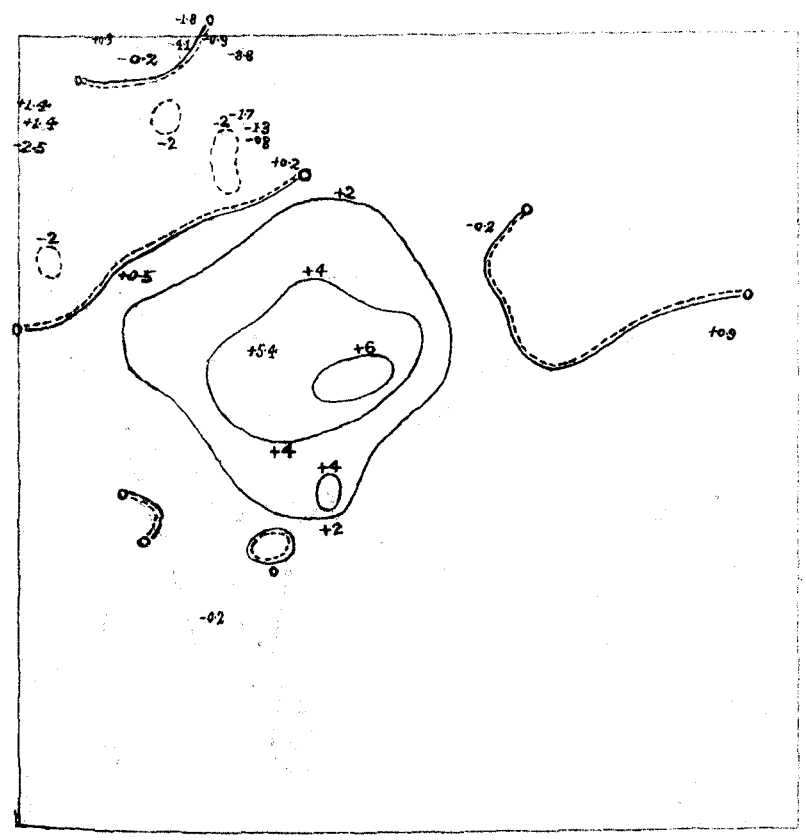
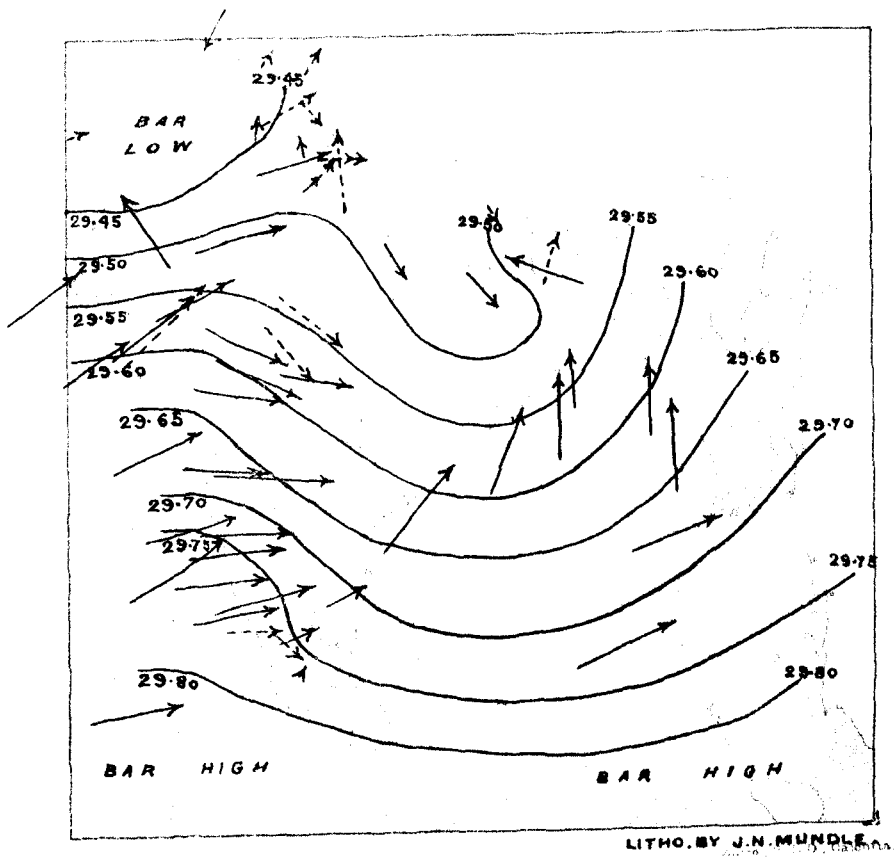


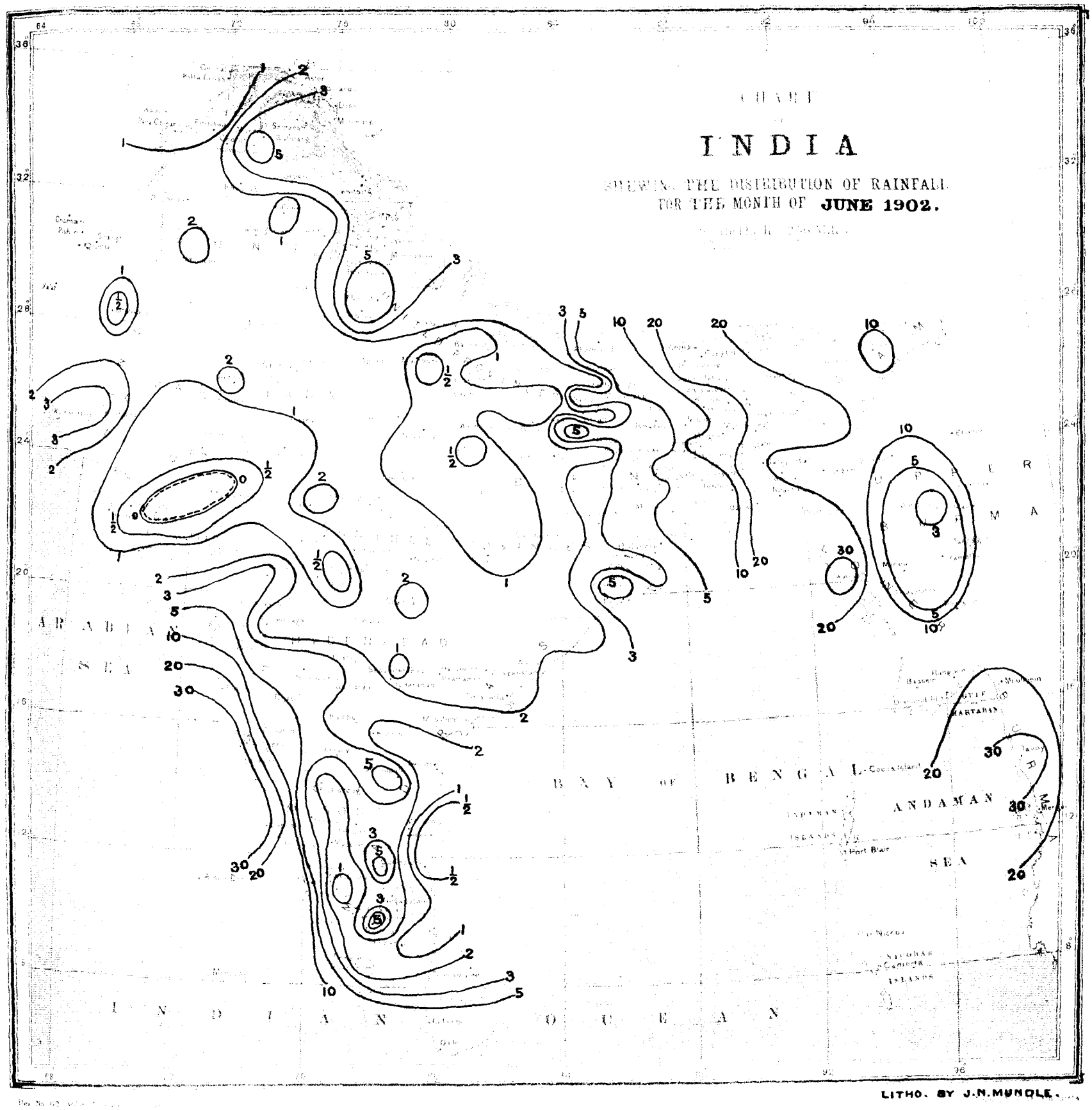
CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF **JUNE 1902.**



LITHO. BY J.N. MUNDLE.

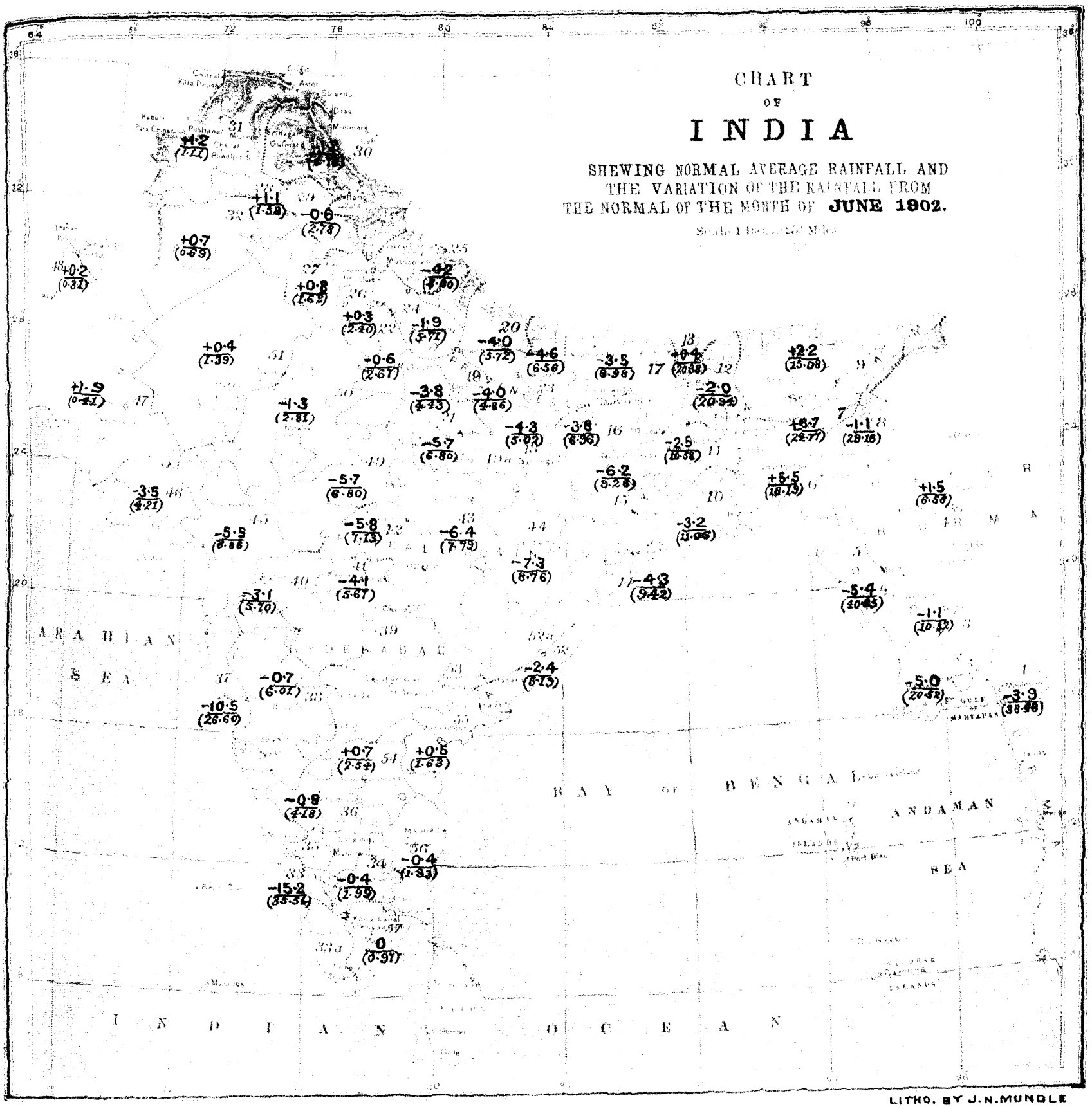
Explanation.

The Chart is constructed in the same manner as the Monthly Charts which have been appended to the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value



Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India (182 in number), except those at the Hill Stations over 3,500 feet in Elevation. The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those where it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.



LITHO. BY J.N.MUNDLE

Explanation.

The Chart gives the variations of the rainfall of the month (in cents of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable and useful means. The country is divided into 57 areas over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both actual and normal for the month) have been calculated, and the numbers given in the centre of each division (usually with a + or − sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The normal average rainfall is also given below in smaller figures enclosed within brackets so that the percentage variation can be at once estimated. The name of the district can be at once ascertained by referring to the following list to the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim
2. Lower Burma Deltaic
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. United Provinces, East
19. South Oudh
20. North do.
21. United Provinces, Central
22. Do. do., West
23. Do. do., East Submontane
24. Do. do., West do.
25. Do. do., Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
33a. Travancore
34. Madras, South Central
35. Coorg
36. Mysore
37. Konkan
38. Bombay Deccan
39. Hyderabad, North
40. Khandesh
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
49a. Do. do.
50. Rajputana East, Central India West
51. West Rajputana
52. Madras, East Coast, North
52a. Do. do. do. (a)
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

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CALCUTTA, JULY 1902.

INTRODUCTION.

THIS review of the weather during the month of July, 1902 is based on observations taken daily at 8 A.M. at 227 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 62 stations.

In the summary which follows, an attempt is made to correlate the conditions obtaining in India with those obtaining in other parts of the Indian monsoon area, so far as data are available. The data available for extra Indian stations are:—

(1) The daily Bulletin Météorologique de l'Observatoire Physique Central, St. Petersbourg, which gives data for Europe and parts of Western and Central Asia, the data for Asia being, however, in this month unusually scanty.

(2) Daily wind, and in some cases, pressure data, collected from the logs of ships entering the Ports of Calcutta and Bombay, the data referring mainly to the Bay of Bengal and the trade routes in the Arabian Sea and the Equatorial belt.

(3) Daily wind and, more or less complete, pressure data for the following stations, (*a*) Kashgar, Gilgit and Chitral, in Central Asia and the North-West Himalayas (*b*) Jask, Muscat, Bahrein, Bushire and Bussorah in the Persian Gulf, (*c*) Teheran, Ispahan and Baghdad, (*d*) Aden, Perim, Zanzibar and the Seychelles, (*e*) Minicoy, Port Blair, Penang and Singapore.

(4) Daily wind data for a few stations in North-East Persia, Afghanistan, Baluchistan and the North-West Himalayas.

(5) Daily data for the Nile Valley and for Suakin on the Red Sea.

To facilitate future study, it has been considered desirable to give, with some fulness, the general features of the daily pressure changes, as well as the chief variations of the daily pressure from the normal; for in this way alone can a vivid and accurate conception be obtained of the actions which affect the weather of India and condition the distribution of the rainfall.

In the rainfall section, besides the rainfall data of the meteorological observatories, the rainfall statements of the month published by the Provincial Governments are also utilized.

Summary of the chief features of the weather in India and the Indian monsoon area during the month of July, 1902.

In the review for June, 1902, it was noted that conditions were at the end of that month becoming more favourable for the advance of the monsoon currents to the Indian region, and that, at the beginning of July, monsoon conditions had re-appeared on the West Coast of the Peninsula.

At the beginning of July, pressure was in slight defect in the south of the Peninsula, Ceylon and the neighbouring seas, but was about a tenth of an inch in excess over the central parts of the country. It was about normal in the West Punjab, and at Jask, and in slight excess at Baghdad, the head of the Persian Gulf, South Arabia (as shown by the data for Aden and Perim) and at Zanzibar and the Seychelles. The air motion in the east of the Arabian Sea was about 20 per cent. below its normal strength and light airs and calms obtained on the West Coast of India. A large shallow low pressure area lay over Bihar and Chota Nagpur and the neighbouring districts of the Central Provinces. Moderate rain was falling in South-East Bengal and Orissa and on the Malabar Coast and a few scattered showers in Burma; thundershowers were fairly general in the Satpuras, but elsewhere the weather was fine. The temperature was

generally in excess, being as much as 14° above normal in the centre of Indo-Gangetic Plain, from which it diminished eastwards towards the area of moderate rainfall in Bengal, where it was in moderate to large defect, and westwards to Sind, where it was about normal and southwards to the Malabar Coast, where it was in slight to moderate excess.

Conditions were slightly disturbed in the North Punjab and Kashmir where a few thundershowers had occurred.

On the 1st, the barometer was rising slightly on the Malabar Coast and falling over a belt stretching across the Peninsula from the Konkan to the Madras Coast. Winds were very light and irregular in direction in the extreme south of the Malabar Coast and calms were reported along the coast from Calicut to Karwar.

A very faintly marked and somewhat irregular cyclonic circulation of the winds shewed on this day in the northern half of the Arabian Sea; north-westerly winds were holding over the Persian Gulf area, while on the Mekran Coast, calms and light irregular winds prevailed; at the same time a strong south-easterly wind was blowing at Veraval, while off Ratnagiri the wind was south-south-westerly. The pressure and wind data for the northern part of the Arabian Sea were on this day, unfortunately, very scanty, and hence the conditions obtaining in that area cannot be determined with accuracy. It seems, however, probable that an area of low pressure and light variable winds held in the north of the Arabian Sea.

On the 2nd pressure rose slightly on the Malabar Coast and fell slightly to briskly in the Gulf of Cambay and neighbouring areas, and in consequence of these changes gradients practically disappeared on the Malabar Coast, and the winds there backed to north-northwest. From Karwar northwards, however, the monsoon gradient was unusually steep. At Karwar the winds were westerly and at Ratnagiri south-easterly. It was again difficult to trace the isobars in the north-east of the Arabian Sea with accuracy, but there were indications that the low pressure area still shewed in the north-east of the Arabian Sea and off the Konkan, the fall of pressure in the Gulf of Cambay being probably due to its slight intensification.

On this day pressure fell briskly over the whole of the Persian region, the fall being most rapid at the head of the Persian Gulf. The winds at Jask and in the centre of the Gulf of Oman had veered from north-west to east, probably under the influence of a low pressure area, which seemed to be developing in the centre of the Persian Gulf. The winds on the Sind and Kathiawar Coasts on this day were chiefly southerly.

Pressure was rising on this day at Peshawar, but was falling in Kashmir and the Upper India hills. The changes in these areas were probably due to the eastward displacement of a disturbance which was affecting the North-West Himalayas on the previous day.

On the 3rd pressure was steady in the extreme south of the Peninsula, but was falling everywhere else, except in the greater part of Upper India and in North-East India, where it was rising slightly to briskly. The fall was probably connected with the advance of a wave of low pressure which preceded the northward extension of the monsoon currents; the rise of pressure along the line of the hills was, on the other hand, almost certainly related to the disappearance of the disturbed conditions which had held in that area during the previous days. As is not unusual when disturbances pass off from Upper India, the rise was also well marked in Upper Assam.

Pressure still continued to fall at the head of the Persian Gulf and, so far as can be judged from the scanty data, the centre of the Persian Gulf depression now seemed to lie somewhere between Lingah and Bushire. It was now a well marked depression and was causing a strong easterly indraught over the whole of the Gulf of Oman. As this depression moved westwards, the winds at Kurrachee and generally on the Kathiawar Coast returned to their normal westerly directions. On the Konkan, however, the winds were still southerly, with a slight easting and the lie of the isobars indicated the continued development of the low pressure area off that coast. With the development of the depression the winds strengthened somewhat on the coast districts to the south and a heavy burst of rain was received on this day in the South Konkan and North Malabar Coasts.

Pressure was still relatively high off the South Malabar Coast, and the winds there, although light and variable, continued generally northerly. This region of light variable northerly winds in the southern part of the West Coast was separated from the region of strong southerly winds in the northern part of the coast by an area of calms near Mangalore, which was also, it may be noted, the southern limit of the precipitation.

On this day the west coast rainfall was local in character, being confined chiefly to the coast stations from Mangalore to Ratnagiri and was heavy only from Mangalore to Goa. It was directly conditioned by the circulation round the low pressure area which was at this time developing off Bombay, and was thus due more to local causes than to a general advance of the monsoon currents over the country as a whole.

On the 4th important changes occurred. Pressure rose briskly to rapidly over the greater part of the Indian region, the rise being brisk in Bengal and Assam and brisk to rapid in Sind and the greater part of the Punjab. Elsewhere in India the changes were slight, being however generally upwards, except in the centre of the West Coast and the neighbouring part of the Deccan, where a slight fall of pressure occurred, due probably to the continued development of the Arabian Sea depression.

The rise was not confined to India, but was well marked over the Persian Gulf; very rapid in the Central Asian region, and in Central Europe; and was fairly well marked over almost the whole of Europe. In point of fact, if a small local fall in North Persia, due to the slight eastward movement of a depression over the Caspian region, be excepted, pressure, on this day, rose over the greater part of Europe and the whole of Southern and Central Asia. The rise was probably most rapid in Western Russia in Europe, and in the West Siberian region, and in both areas it was probably related to the northward displacement of areas of low pressure. The rise may also have been related to the eastward march of two anticyclonic areas which shewed on this day, one, between the Caspian and the

Ural Mountains, the other in the north-west of Austria, the excess of pressure in each being about a third of an inch. The former anticyclonic area seemed to be stationary from the 3rd, but the latter was moving steadily eastwards and gradually spreading over West and Central Europe.

The general effect of these changes was to check somewhat the development of the depression off the West Coast; at the same time the winds to the south of the depression fell off in strength, and the rainfall on the West Coast diminished.

On the 5th, the rise of pressure continued in West Siberia, where it was very rapid, and probably also over the greater part of the Central Asian region. It may be noted that on this day pressure was over a quarter of an inch above normal in the Baikal region and about ·150″ above normal in West Siberia. The Russian data for this period are unfortunately very scanty, but they indicate that the high pressures obtaining at this time over Northern India from Peshawar to Assam, were very probably the southward extension of anticyclonic conditions, which held over the greater part of North Asia, a view confirmed by the fact that the excess of pressure was greater in the North Punjab and Assam, than in the intervening submontane area of the United Provinces.

The rise of pressure on the 5th in Asia did not, however, extend so far south as India, for pressure was steady at Kashgar and was falling briskly at Gilgit, and slightly in Kashmir, as also generally over North-West India. This fall was probably due to local causes, *e.g.*, the eastward extension of a low pressure area from Trans-Caspia, of which at this time there were some indications. Pressure was rising in North-East India and in Upper Burma. In the south-west of the Bay and on the West Coast pressure was falling briskly, the fall on the West Coast being probably due to the redevelopment of the low pressure area off the Konkan, while the fall in the Bay was related to the initiation of a slight cyclonic whirl in that area.

The initiation of this whirl was probably directly related to the excessive pressures obtaining at the time in Upper Burma and the North-East of the Bay. For, in consequence of this excess, the isobars in the east of the Bay ran almost parallel with the Burma Coast, instead of cutting sharply into it, as they normally do, and the winds in that area were in general south-south-east instead of south-south-west. At the same time, normal south-westerly winds held in the south of the Bay, while on the Madras Coast the winds were westerly, and on the Circars Coast north-easterly to easterly.

The changes elsewhere in the monsoon region on this day were slight.

During the next few days the changes in the south of the Indian area were mainly related to the movements of the depressions in the Arabian Sea and in the Bay of Bengal, above referred to.

On the 6th pressure fell briskly in the north-east of the Arabian Sea and off Gopalpur in the Bay area, but rose briskly to very rapidly in the west of the Punjab and slightly to briskly in Bengal and Burma. In consequence of these changes, pressure was about ·200″ in excess in Upper Burma and in the west of the Punjab, while in the low pressure area off the Konkan, pressure was ·150″ in defect, the pressure distribution being hence at this time very abnormal. A low pressure area was shewing in the Persian Gulf but it had no effect on the winds further east than Gwadur on the Mekran coast.

The increase of pressure in Upper India was almost certainly related to actions taking place to the north of India, for the rise was continuous from the Central Punjab northwards as far as Kashgar. But in the absence of Russian charts for the week ending on the 12th, which have not been received, it is undesirable to further consider this question.

On the 7th pressure fell slightly to briskly in Khandesh and Kathiawar, due to the slight northward displacement and intensification of the Arabian Sea depression; it also fell briskly in Kashmir, the West and Central Punjab and North-East India. The fall on this day in the Punjab, like the rise on the 6th, also extended to Kashgar, and was hence not a local, but a general action, a view which is confirmed by the fact that the fall was much more marked in the West and Central Punjab and Assam than in the submontane areas of West Bengal and the United Provinces.

By 8 A.M. on this day the Bay depression had crossed the coast and moved inland to the east of the Central Provinces, where it now showed as a very slight depression, central near Sambalpur.

On the 8th pressure again fell briskly to rapidly in the East Punjab and Assam, as also in Further Kashmir, the fall equalling or exceeding a tenth of an inch at Kashgar, Gilgit and Skardu and at Dibrugarh. This fall like the fall of the previous day was almost certainly related to large pressure changes in the Central Asian region.

The fall in Kathiawar continued and the centre of the depression in that area was now very near Veraval, where the defect from normal was just under a quarter of an inch. Pressure was now very uniform over an area extending from Sind to the head of the Persian Gulf and including Baluchistan, South-East Persia, the Persian Gulf area and the north of the Arabian Sea.

The pressure changes on the 9th were similar to those on the 8th, *viz.*, a general fall in the Punjab and in North-East India, as also in the depression area in Kathiawar, the fall being, however, less extensive and rapid than on the previous day. Pressure was now in slight defect in Ladakh and Assam, but was still in slight excess at the head of the Bay and in the Punjab. The Arabian Sea depression was little changed in position, but it had intensified slightly and become more concentrated.

On the 10th, pressure was still falling slightly in North-East India and in the Punjab, but had risen briskly at Gilgit and Kashgar and briskly to rapidly in the storm area in the Gulf of Cambay, where the abnormal defect of pressure was now only ·150″, and slightly in the rest of India, except on the Malabar Coast, where a slight fall had occurred.

On the 11th, pressure fell rapidly in the submontane areas of the Punjab and Bihar and briskly over the remainder of the Punjab, throughout the Gangetic Plain,

and in Bengal and Burma. A brisk rise occurred in the storm area over Kathiawar and slight rises in other parts of the West Coast.

The fall of pressure extended from North India northward through Kashmir to Kashgar, but was slight at all the Extra Indian stations. It was also slight in Assam. It hence seems difficult to connect it with actions external to India, but in the absence of Russian data, it is impossible to further consider this point.

The changes of pressure in North India on this and previous days had entirely altered the nature of the pressure distribution, and on the 11th pressure was in general defect over the whole of India; the defect being most marked in the centre and south of the Peninsula and along the line of the hills from Assam to Bihar.

On the 12th pressure rose briskly at Teheran and fell rapidly in the Punjab, the fall seeming to originate from some centre lying to the north-west of India which, however, from lack of sufficient data cannot be more precisely defined. That the depression approached from the north is unlikely for at Chitral and Kashgar, the pressure changes on this day were slight. It is more likely to have moved east over Afghanistan, for it is to be noted that on the 11th pressure was very uniform over the whole of the Baluchistan and Persian region, from Chaman to Bushire, and it is possible that within this region a low pressure area may have formed which later advancing eastwards may have caused the fall of pressure in the Punjab on the 12th. But as practically no data are available for this region, it is impossible to verify this hypothesis.

Pressure rose slightly on this day over the greater part of the Peninsula, as also in Assam (Brahmaputra Valley), but fell slightly in the north-east of the Bay and the neighbouring land areas. The changes were, however, slight and of comparatively little importance. The fall in the north-east of the Bay was probably the first indication of the development of a depression.

In consequence of these changes pressure was now in very large defect in the West Punjab (—·200″) and in Lower Burma (—·125″), the defect diminishing southwards to —·050″, in the south of the Peninsula.

Pressure was in moderate to considerable defect on this day in the Persian Gulf region, where a slight depression was shewing, and in moderate defect in South Arabia and in the Trades region as indicated by Zanzibar and the Seychelles.

On the 13th, the pressure changes within India were slight, except at the foot of the Simla and Mussooree hills where pressure had risen briskly to rapidly (in consequence probably of the fall of temperature caused by rainfall during the previous day) and at the head of the Bay, where pressure had fallen briskly in consequence of the development of the depression in that area, the first indications of which were showing on the 12th.

The only important change outside India was a rapid fall of pressure at Teheran, due, apparently, to the eastward advance of a low pressure area from the Caspian region, within which pressure seemed to be in slight to moderate defect.

The very rapid rise reported at Gilgit on this day was probably erroneous, as pressure was falling both at Kashgar and in Kashmir.

On this day pressure was in large defect in two areas, (1st) in the West Punjab where it was a fifth of an inch in defect, and (2nd) in the north-east of the Bay, where it was ·175″ in defect.

On the 14th, pressure rose very rapidly in the North-West Punjab, the rise exceeding a fifth of an inch at Peshawar, and being only slightly less at other stations in the north-west of the Punjab.

This rise seemed to be local in character, since pressure was steady at Tashkent and Kashgar and was falling briskly at Gilgit and rising slightly at Chitral and Leh. It was probably due to a rapid fall of temperature produced by rainfall, which had occurred during the preceding day in the north of the Punjab and at the outer stations in Kashmir; this precipitation was in turn, conditioned by the abnormally low pressures obtaining in the Punjab on the previous day which had led to an advance of monsoon winds into that area. The only other change of importance within India was the fall of pressure in North and East Bengal, due to the development of the depression at the head of the Bay.

Outside India the only important change was a brisk fall of pressure at Baghdad, due to the redevelopment of a low pressure area in the Persian Gulf region, which was now well marked and was influencing the winds over the greater part of the Gulf area. Pressure was about a sixth of an inch below normal on this day at Jask at the mouth of the Persian Gulf.

On the 15th, important changes occurred. Pressure rose rapidly at Tashkent, and fell briskly to rapidly at Kashgar, Gilgit, Chitral and the Kashmir stations and over the greater part of Northern India. The Russian data for this day are extremely scanty, and it is hence impossible to do more than guess at the causes of this movement. The rise of pressure at Tashkent, however, coupled with the general fall at the stations to the east of Tashkent makes it probable that it was due to the eastward movement of the low pressure area which was noted above as having passed east from the Caspian region on the 13th.

The only other change of importance was the fall of pressure in North-East India, due to the continued development of the Bay depression, which on this day was lying over the north-west angle of the Bay.

Elsewhere in the monsoon area the changes were of little importance.

On the 16th, the changes within India were chiefly conditioned by the movement of the Bay depression, which was now lying over Chota Nagpur. It was a storm of moderate intensity, the defect from normal at its centre being over three-tenths of an inch.

The fall of pressure continued in North-West India and Kashmir but was replaced by a slight rise at Chitral, which was probably an indication that the Trans-Caspian disturbance was continuing its eastward movement and that its centre had passed east of Chitral.

Pressure was now about one-sixth of an inch in defect in the North and Central Punjab, about one-third of

an inch in defect in the storm area in Chota Nagpur and normal or in slight excess, or defect, in Lower Burma and in the extreme south of the Peninsula.

In the Persian region pressure was generally steady but was falling slightly at the mouth of the Persian Gulf.

By the 17th, pressure was rising generally over the whole of the Indian region and also over the greater part of the Central Asian region, so far as can be judged from the available data. The rise was rapid in the north of the Punjab and at Gilgit and Kashgar, as also at Dibrugarh and Sibsagar at the head of the Brahmaputra Valley. The changes within India were conditioned chiefly by the movements of the depression from the Bay, which was now central in the east of the Central Indian Plateau. But on these were superimposed the wider changes referred to above, which were most probably related to the continued eastward movement of the depression which we have supposed to have marched eastwards from the region of the Caspian.

On this day, it may be noted, a rapid rise of pressure was reported at Baghdad; but as it is not supported by the data for any neighbouring station, it may be considered doubtful.

The only important changes on the 18th within India were those connected with the movement of the depression, which was now central in the east of the Central Indian Plateau. Pressure was still falling slightly in the extreme north of the Punjab as well as in Upper Assam, an indication probably of the continued influence of some action in Central Asia. Pressure was now normal or in slight to moderate excess in Burma and over the Bay area, but was in very large defect at the centre of the depression area in Central India. Pressure was still in considerable defect in the Gulf of Oman, but was about normal at Baghdad and the northern parts of Asiatic Turkey. Pressure was in moderate defect at the Seychelles and Zanzibar.

On the 19th pressure was rising over the whole of the Indian monsoon area, except Assam and Burma and the Bay Islands, where pressure was falling. The rise was, however, in general only slight, except in the United Provinces, where was brisk to rapid.

Pressure rose on this day over the whole of the Persian area, where it was in slight to moderate defect, and in the Caspian region, where it was now in considerable to large excess. It fell locally at Baghdad and Bussorah.

Pressure was now in moderate to considerable excess over the Peninsula and in moderate to considerable defect in the Trades region, and gradients were consequently much slighter than usual over the Arabian Sea.

Pressure continued to rise slightly over the Peninsula, on the 20th, but as it also rose at the Seychelles and Zanzibar gradients remained practically unchanged over the sea areas, where the winds were in general much weaker than usual.

Pressure fell slightly on this day in North-East India due to the developmemt of a slight local depression in that area; it also fell in the Upper Sub-Himalayas, and in these areas readings were in slight defect. Over the Peninsula, however, and in the south of the Bay pressure was in moderate to large excess. In the Persian Gulf area pressure was now about normal.

On the 20th and 21st, so far as can be judged from the scanty available data, pressure was in moderate to large defect in the Central Asian region, and it is, perhaps, possible to connect with this the relatively low pressures obtaining at this time in the submontane areas of Upper India.

Pressure rose briskly to rapidly in Burma and North-East India on the 21st, but fell slightly to briskly over the head of the Peninsula and in the north and centre of the Punjab; but it is doubtful if these changes were due to actions other than local.

Pressure continued to rise in the Persian region as well as at Zanzibar and the Seychelles, gradients thus continuing practically unchanged.

On the 22nd, the changes were similar to those of the 21st, *i.e.*, generally upwards in Burma, the Bay area, the south of the Peninsula and in the Upper Sub-Himalayas and downwards over the head of the Peninsula, the Central India Plateau, Sind and Gujarat. The changes were, however, in general slight. Pressure was steady in Persia and in the Trades region.

The gradient between the Seychelles and Ceylon on this day was about ·080″, instead of the normal ·120″, or about 33 per cent. below its normal value.

On the 23rd, pressure fell in all parts of the monsoon area except in the Trades region, where it was steady or rose slightly, and over Western and Central India, where it rose slightly to briskly. The fall was brisk in Lower and Central Burma, and slight in Upper Burma and Assam. It was slight to brisk in the Persian region, as well as in Baluchistan and in Central Asia.

The rise of pressure on this day in Western and Central India was probably related to the movements of the depression, which was now central between Cawnpore and Mainpuri, and if so was due to local causes. The fall of pressure, on the other hand, was extremely general and widespread, extending, with the exception above noted, from Burma to Baghdad and from Ceylon to Kashgar and Tashkent. It cannot be associated with the movements of low pressure areas in any part of the monsoon region, and seems to have been due to some large general action which cannot be definitely determined.

This extensive downward movement continued on the 24th, when it affected the whole of Europe and every part of Asia for which data are available, with the exception of Cochin and Singapore, at both of which stations pressure rose very slightly. The fall was nowhere large. It equalled or exceeded a tenth of an inch only in the Caspian area and at Teheran and only slightly exceeded one-twentieth of an inch at Ispahan, Perim, Aden, the Trades stations, and in parts of Upper India; it was under one-twentieth of an inch in the West Coast, the West Punjab, Assam and Upper Burma. These changes increased the gradient over India, which was now about 37 per cent. in excess of its normal value; the pressure

difference between South India and the Punjab being about '550″ instead of the normal '400″.

The gradient over India was still further increased by the changes of pressure on the 25th, which were upwards at all Extra India stations, except Chitral, and downward over the whole India, except on the West Coast and in Lower Burma, in both of which areas pressure was steady or had risen very slightly. The rise was moderate at all Extra India stations, exceeding '050″ only at Baghdad and Gilgit. Within India the fall was generally slight, but was brisk on the East Coast North and rapid in the Indo-Gangetic Plain West. It is difficult to suggest an explanation of the rapid fall in the Punjab, for it was apparently entirely unconnected with any action in the regions to the north. It may possibly have been due to the eastward movement of a low pressure area from the west, but this, although not inconsistent with any of the available data, cannot be said to be capable of being established from them. The fall may, on the other hand, have been entirely due to local causes.

On this day pressure was in slight to moderate excess on the West Coast and over the Peninsula generally and in moderate to large defect over the whole of Upper and North-East India, the defect exceeding an eighth of an inch in the Upper Sub-Himalayas. Pressure was in considerable excess at Tashkent, but was in slight defect at Omsk; it is, however, improbable that these conditions were in any way related to conditions obtaining in India. Pressure was normal or in slight excess in the Persian Gulf region.

The changes on the 26th were again somewhat anomalous. Pressure fell rapidly in Upper Sind and briskly in the surrounding areas, whereas along the line of the hills from Rawalpindi to Bahraich there was a slight rise. Pressure, however, had fallen rapidly in Kashmir, the fall having exceeded a tenth of an inch at Gilgit and Leh. It is possible that the fall in Kashmir may have been due to the eastward displacement of the depression which affected the Upper Sub-Himalayas on the previous day, but the data are insufficient to enable this point to be determined. It seems, however, certain that the fall in Kashmir on this day was not due to any action from the north, or north-west, for pressure rose slightly on both this and the previous day at Tashkent and Kashgar. The fall of pressure in Sind may have been due to local actions, but whether this was the case, or whether it was due to the eastward movement of a low pressure area from the Baluchistan Plateau, it is impossible to decide.

Pressure fell briskly on this day in the north-east of the Bay, where it was now an eighth of an inch below normal, and where a depression now seemed to be forming. Elsewhere in India the changes were slight but generally downwards. In the Persian Gulf area the changes were generally upwards, but were slight and of little importance.

Pressure was now in slight excess at the Seychelles and in slight defect at Zanzibar, in slight defect at the mouth of the Persian Gulf and in moderate to considerable excess at Baghdad, Perim and Aden. Within India pressure was normal or in excess only on the West Coast and in the south and centre of the Peninsula; but was in considerable to large defect in all other parts of the country. The defect exceeded a fifth of an inch in Upper Sind.

Gradients were consequently very much steeper than usual between the Konkan and the South-West Punjab and very strong winds were blowing over the Kathiawar and Cutch Coasts, which carried moderate to heavy rain to the Upper India hill and submontane areas.

On the 27th there was a rapid recovery of pressure in the north of the Punjab and Kashmir, the rise being greatest and exceeding a tenth of an inch at Lahore and Ludhiana and at Gilgit. The rise seemed to be continuous from about Lat. 24° N. to Kashgar and Tashkent, and may have been even more widely extended, but the absence of Russian data for the Siberian stations makes it impossible to fix the limits of the rise with precision, or definitely ascertain its cause. The changes in other parts of India were in general slight. There was a fall of pressure over the Peninsula, which was brisk in the Deccan and slight over the rest of the Peninsula. The changes in North-East India were chiefly conditioned by the movements of the depression at the head of the Bay, which was now central near Saugor Island, with a defect of pressure at its centre slightly under a fifth of an inch. Pressure had again fallen in the Persian area where a depression seemed to be again forming, its centre apparently lying to the north of Jask. Pressure was now in defect over the whole of the Indian area, the defect being slight in the south of the Peninsula and across the south of the Bay, and very considerable in the area covered by the Bay depression and in the South-West Punjab and Upper Sind. Pressure was also in large defect at the mouth of Persian Gulf, but was normal or in slight excess at Baghdad, Aden, and in the Trades region.

Gradients were still steep for winds across the Kathiawar and Cutch Coasts and a strong current was passing from there in a north-easterly direction to the Upper India Hills.

The rapid rise of pressure in the north and centre of the Punjab on this day was most probably due to the rapid fall of temperature caused by precipitation in that area and in Kashmir (where on this day a fall of temperature averaging 8°·7 had occurred).

The rise of pressure in Upper India continued on the 28th and was even more general and widespread than on the previous day, a rise of over an eighth of an inch having occurred at Chitral and Gilgit and at several stations in the Punjab. This rise, like the rise of the 27th, was probably largely a temperature effect, for on this day in Further Kashmir the maximum temperature was 19°·7, and the minimum temperature 10°·2, lower than usual. Pressure also rose in Burma and North-East India, but the rise was in general only slight and was chiefly conditioned by the movements of the Bay depression. There was a slight fall of pressure in the Peninsula and slight changes, chiefly downwards, in the Persian region.

The chief feature of the pressure changes of the day was the rise in the Punjab and the regions to the north, and pressure was now practically normal in that area. It was still in moderate to considerable defect in the depression area which now covered Chota Nagpur and South-West Bengal. In other parts of the monsoon area pressure was

in general approximately normal, except at the mouth of the Persian Gulf where it was still in considerable defect.

On the 29th, pressure rose briskly over the greater part of North-East India and Burma and in the submontane areas of Upper India and in Sind, Gujarat, and slightly in the Peninsula. The rise was rapid in Deltaic and Central Bengal, in consequence of the movements of the depression whose centre now lay a little to the south-east of Allahabad. The abnormal defect of pressure at its centre was now under a tenth of an inch, for with the general rise of pressure the storm had filled up to a considerable extent.

During this and the previous day, pressure had given way briskly to rapidly in the Caspian region and a well defined depression had formed there, with an abnormal defect of pressure at its centre of about a quarter of an inch on the 29th. In sympathy with this, pressure had fallen briskly at Teheran and Ispahan and slightly at Chitral. In the Persian Gulf area, however, the pressure changes were generally upwards.

On the 30th the pressure changes were important and interesting. They were largely conditioned by two main factors, (1) the movements of the Caspian depression, (2) a large and widely extended rise of pressure which seemed to shew most markedly along a belt stretching from Baghdad eastwards across the Arabian Sea to the Indian Peninsula. Thus, pressure had risen very rapidly at Tiflis, briskly at Baku and slightly at Teheran and Ispahan. It had fallen briskly at Tashkent and Kashgar and rather rapidly at Chitral. (The very rapid rise on the 30th, at Gilgit, as well as the very rapid fall there on the 31st, were probably both erroneous.) These changes would seem to indicate that the Caspian depression had moved eastwards and was now probably central somewhere to the north of Chitral. In sympathy, apparently with the movements of this low pressure area in Trans-Caspia, the rise of pressure which was general over the Indian area was much less marked in the Punjab than in the other parts of the country. It is probable also that the movements of the depression in the Gangetic Plain, which, on the morning of the 30th, was central between Cawnpore and Jhansi, had tended to check the rise of pressure in Upper India. In all other parts of India, however (except Burma) the rise of pressure was brisk to rapid. It is difficult to assign a cause for this general rise.

On this date readings were in large to very large excess in Central Asia (Omsk +·156″, Tomsk +·240″, Tchita +·204″) and in considerable excess over the greater part of the Punjab and in North-East India (+·100″ in both areas) and in slight excess over the Peninsula, pressure being in defect only in the depression area which still showed in the east of the Central India Plateau. Excesses almost equally marked held on this day in the Persian Gulf region (Bushire +·103″, Muscat +·066″ and Jask +·035″). Pressure was normal or in slight defect in the Trades region.

The changes on the 31st were generally downwards in the Indian and Persian regions, the fall being rapid in the extreme north and west of the Punjab and brisk in Kashmir and at Kashgar. It is possible that they were directly related to the continued eastward movement of the Caspian depression. It is probable that the fall in the Persian Gulf area was due to the local redevelopment of the semi-permanent depression in the south-east of the Persian area.

Thus, at the close of the month, pressure was normal or in slight excess over the whole of India, except (1st) in the Central Indian Plateau where the depression of the previous day had redeveloped, and was now showing a defect from normal at its centre of about a sixth of an inch, and (2nd) in the south-west of the Punjab, where pressure was about ·050″ in defect. In the north and east of the Punjab and in Kashmir pressure was about normal. In West Siberia, on the other hand, pressure was about a quarter of an inch in excess. In Persia and Arabia and over the Trades region pressure was in slight to moderate excess.

The Equatorial Belt.—The following short account of the conditions obtaining in the Equatorial belt is added here for convenience of reference.

The available data seemed to indicate that on the 1st, pressure was in slight defect in the centre and east of the Equatorial belt, the line of no variation running almost due west from Tavoy across the Bay to the south of the Peninsula and from the west coast passing in a south-westerly direction to some point a little to the east of the Seychelles. Pressure was in moderate excess from Zanzibar to Baghdad. During the next two days the area of low pressure extended northwards and westwards and on the 3rd, pressure was below normal to the east and south of a line passing from Zanzibar, with a sweep to the west, to Baghdad, thence probably through the east of Persia and the Baluchistan Plateau to the neighbourhood of Kurrachee, and from there south-eastward to Nellore, then east to Tavoy. Pressure fell slightly at the Trades stations on the 3rd, and it may be noted that on that day the wind at the Seychelles fell off very markedly in strength, from an average of 10½ miles an hour on the 2nd, to an average of 6½ miles on the 3rd, the direction at the same time backing from south-east to south-south-west. By the 4th, however, the wind was normal both in direction and strength, but on the 5th, while retaining its normal direction, it again fell off very much in strength and continued weak till the 6th, when it strengthened rapidly. It increased slightly in strength during the succeeding three days, and on the 9th was slightly stronger than usual. On this day pressure was in very large defect in the north-east of the Arabian Sea, where a depression with an abnormal defect of pressure at its centre of about a quarter of an inch was showing. The —·050″ variation line stretched from Baghdad to Zanzibar and from there seemed to pass about due east, lying to the south of the Seychelles. Gradients were hence at this time unusually steep over the greater part of the Arabian Sea and winds were generally stronger than usual over that area.

On the 10th pressure rose briskly in the north-west and west of the monsoon area, so that the area of defective pressures became much contracted, the —·050″ line now reaching from the Seychelles and Zanzibar to near Aden, thence, to the mouth of the Persian Gulf and along the Mekran Coast to Kurrachee. From the 10th to the 15th,

although the pressure conditions at the Seychelles and Zanzibar apparently remained practically unchanged, the strength of the winds at the Seychelles varied considerably, averaging 5 miles an hour on the 10th; 10½, miles on the 11th; 8, miles on the 12th; 5, miles on the 3th; 9, miles on the 14th, and 13¼ miles on the 15th, while their directions were generally south-east, except on the 12th, when the wind blew from the south. The changes at Zanzibar were generally similar. It is difficult to connect these changes with changes in the pressure conditions.

On the 13th the winds again fell very light in the Trades region, the average velocity at the Seychelles on this day being only 5 miles an hour, although the wind still continued unusually strong over the greater part of the Arabian Sea.

During the next three days the winds at the Seychelles steadily strengthened, at the same time slowly veering towards south, till on the 16th they were blowing with an average velocity of 16 miles an hour from south-south-east. It is difficult to connect these changes with any change in the pressure conditions which can be traced in the available data, the only noticeable feature being a slight but steady fall of pressure from the 14th to the 16th at both the Trades stations.

On the 17th important changes were initiated. Pressure rose slightly at the Seychelles and very slightly at Zanzibar, changes which seemed to be conditioned by the advance of a high pressure area from the east. This area of relatively high pressures spread steadily westwards during the next 4 or 5 days. Thus, on the 17th the line of no variation from normal extended from Assam in a south-westerly direction through Arakan and the Bay area to the Madras Coast and thence continuing in the same direction passed a little to the south-east of the Seychelles, pressure at the Seychelles being in slight, and at Zanzibar in moderate, defect. On this day the wind at the Seychelles averaged only 4½ miles an hour and was blowing from the north-east Pressure in Lower Burma was now over +.050″ in excess. On the 18th, conditions seemed to be very anomalous in the west of the Equatorial Belt. Pressure fell at both Trade stations and was now .070″ in defect at both. Meantime the area of excessive pressure had moved westward across the south of the Bay of Bengal and excesses from normal of ·050″ were shewing on the Madras Coast. The wind on this day at the Seychelles averaged only 3 miles an hour. By the 19th, the area of excessive pressure had moved still further westward, and the area of greatest excess now shewed in the west of the Bay where readings were ·075″ above normal. The line of no variation now stretched from about Mandalay across the head of the Bay towards the west to near Kurrachee and thence about due south through the centre of the Arabian Sea. At the Seychelles and in the Gulf of Aden pressure was in moderate defect and at Zanzibar, in considerable, defect. Pressure was also very low in the Persian Gulf region, the defect from normal at Muscat the mouth of the Gulf being about an eighth of an inch and at Baghdad about a tenth of an inch.

By the 20th pressure was above normal over the whole of India and Burma (except Upper Burma, Punjab and North-East India), the Persian Gulf region, and, so far as can be judged, South and East Arabia, the area of greatest excess of pressure now covering the south of the Bay, the East Coast of the Peninsula and Lower Burma.

On the 21st readings were excessive over the whole of the area enclosed by a line passing from the Seychelles to the south of the Red Sea, and enclosing Arabia and Persia, the whole of India (except the North Punjab and along the line of the hills to Bengal) and Burma. The area of greatest excess was still in the east of the region, being +·150″ in the Malayan Peninsula, but exceeding a tenth of an inch over the greater part of the Bay area and at the mouth of the Persian Gulf. Pressure was, on this day, in slight defect at Zanzibar.

By the 22nd pressure was in excess by ·150″ over a belt extending from Pegu across the centre of the Bay to the East Coast near Cocanada, the line of +·100″ excess, stretching from Mandalay, across the head of the Bay in a curved line to Mangalore on the West Coast of the Peninsula, thence sweeping south along the coast and passing eastward from Cape Comorin over Ceylon and the south of the Bay. Pressure was also a tenth of an inch in excess at Bagdad and over the south of the Red Sea. Pressure was +·053″ in excess at the Seychelles and +·016″ in excess at Zanzibar. The line of no variation enclosed the east of Persia, Baluchistan and the South and West Punjab. An area of deficient pressure was also shewing in the Indo-Gangetic Plain, East.

On the 23rd, the high pressure area still shewed in the west of the Bay, but the excess had diminished from ·150″ to ·125″. The centre of the area had also moved slightly westwards. In other respects conditions were little changed.

On the 24th, however, although pressure was still in excess in a belt stretching westward from the Malayan Peninsula across the Bay area, the Indian Peninsula and the Arabian Sea to the south of Arabia, the excess from normal in this area was very much reduced, probably not exceeding ·075″ in the area of greatest excess, which now seemed to lie over the east of the Arabian Sea. Pressure was now normal at the Seychelles and in slight defect at Zanzibar.

By the 25th the amount of the excess had still further diminished, at least in the Indian region, for excesses of about a tenth of an inch were still shewing in Arabia. It is probably impossible to say whether the excess in Arabia was due to the westward displacement of the region of excessive pressure from the Indian monsoon region, or whether it was due to the eastward displacement of high pressure conditions from the west. For both to the east and to the west of the area of high pressure in Arabia, readings were to be higher than usual.

During the 26th and 27th the excesses still further diminished in the Indian monsoon area and on the latter day readings were in general defect, being normal only at the Seychelles and in Central and West Arabia. On the latter day three centres of depression shewed; one, at the head of the Bay of Bengal, where pressure was ·175″ in defect; the other, in Upper Sind (·150″); and the third near Jask (·140″). From these the defect of pressure diminished southwards to about zero in the Equatorial Belt. The mean pressures at Mauritius during the weeks

ending the 19th and the 26th were, respectively, ·079″ and ·039″ below the normals for these periods.

On the 28th the area of defective pressure began to diminish in extent. During the next two days the contraction continued, till by the 30th the area of abnormally low pressure was confined to a small patch in the centre of the Gangetic Plain, where pressure was in moderate to considerable defect. On this day excesses of a tenth of an inch were showing in three areas, (1) East Bengal, (2) the west of the Punjab, and (3) the centre of Persia.

The following details regarding the wind velocity at the Seychelles may be noted here:—

On the 17th, as already noted, it had an average velocity of 4½ miles an hour from the north-east, on the 18th, the average velocity had sunk to 3 miles an hour, the direction at the same time having veered to east. By the 19th, it had returned to its normal south-east direction with an average velocity of 8½ miles an hour. During the next two days the velocity steadily increased till it averaged 17⅓ miles an hour during the 21st, its direction remaining normal. It diminished in force somewhat on the 22nd, falling to 13⅓ miles an hour without change of direction, but on the 23rd it veered to south, increasing slightly in strength. A slight falling off shewed on the 24th, but its direction returned to normal, and from the 24th its velocity rapidly increased, reaching 20 miles an hour on the 26th and maintaining that velocity on the 27th. On the 28th, it veered to south, its velocity at the same time falling to 14¾ miles an hour. On the 29th, it was blowing from the south-south-west with a velocity of 18 miles an hour, but by the 30th had returned to its normal direction, south-east, which it retained on the 31st, on both of which dates its velocity was only about 10 or 11 miles an hour.

Whatever the causes of these variations they did not seem to extend to Zanzibar. For during the period about the 27th, when the velocity of the winds at the Seychelles was so high, the winds at Zanzibar were unusually weak and variable in direction.

It seems, however, useless to consider the data further, for it is very doubtful if detailed examination of the very scanty data would elicit any conclusion of value.

This section may be closed with a short account of the main features of the rainfall distribution.

(1) The Burma Coast districts had almost daily rain throughout the month.

(2) In Central Burma numerous showers were received during the first fortnight of the month and moderate to heavy rain during the remainder of the month.

(3) Moderate to heavy rain was received in Upper Burma during the first five days of the month and occasional showers during the remainder of the month, the heaviest falls being received from the 13th to the 18th.

(4) Similar conditions held in Assam except that in Assam the rainfall was heaviest from the 7th to the 12th, and a partial break held during the 13th, 14th and 15th, at the time when the rain was heavy in Upper Burma. The partial break in Assam coincided with the period of the incubation of the storm of the second week at the head of the Bay, when the winds, instead of passing north-eastwards into Assam, fed into the depression area.

(5) A heavy burst of rain was received over the whole province of Bengal between the 2nd and the 12th, the fall being especially heavy in North Bengal. During the greater part of this time pressure was unusually high in Burma and the currents were consequently largely deflected to Bengal and the Gangetic Plain. On the 14th and 15th heavy rain was received in Orissa, at the time when the Bombay current was feeding into the depression then forming at the head of the Bay. At this time only light showers were received over the rest of the province. From the 16th to the 24th, the rainfall in Bengal was largely conditioned by the movements of the two depressions which passed westwards during this period, one from the head of the Bay and the other from Central Bengal. Heavy rain was again received in Orissa during the last week of the month while the last storm of the month was forming, the precipitation on this occasion taking place under conditions very similar to those obtaining during the formation of the storm of the second week. During this period the rainfall in other parts of Bengal was moderate, being lightest in Bihar.

(6) The United Provinces and Upper India received rainfall chiefly in the three following periods: (1st) during the first week, when the Bay current was blowing strongly over Bengal and up the Gangetic Plain, (2nd) during the third week while the storm of that period was passing up the Gangetic Plain, and (3rd) during the last three days of the month, when the last storm of the month was moving westwards. Moderate to heavy rain was received also from the 25th to the 28th in the United Provinces and from the 22nd to the 28th in the submontane areas of the Punjab, in consequence of the unusually strong winds from the Kathiawar Coast then prevailing.

In the United Provinces the rainfall of the first period was heaviest in the east submontane areas and was moderate elsewhere. It extended into the Punjab, but was generally light, except along the line of the hills, where, and at Umballa and Rawalpindi, it was moderately heavy. From the 8th to the 16th the weather was fine in the Punjab, but was showery in the United Provinces, the precipitation being heaviest in the hill and west submontane areas. The cyclonic storm of the third week gave good rain to the areas in its track, the rainfall being heaviest in the Allahabad, Agra, Jhansi, Saharanpore and Almora districts. Moderately heavy rain was also received at this time in the south-eastern districts of the Punjab and light to moderate rain was received in the Punjab hill and submontane areas, but elsewhere the rainfall was insignificant. In the Punjab the rainfall accompanying the rush of wind from the Kathiawar Coast in the fourth week was probably the most general as well as the heaviest during the month. A break set in over the Punjab during the last three days of the month.

(7) Numerous showers were received in Kashmir during the first week and again from the 21st to the 26th, which were generally the periods of rainfall in the Punjab. A few local showers were received in that area from the 13th to the 19th and again from the 27th to the end of the month.

(8) Western Rajputana received some local showers from the 16th to the 19th, but was rainless during the remainder of the month. In Eastern Rajputana fairly

general rain was received during the first week, and from the 12th to about the 23rd and during the last three days of the month. In Central India rain was fairly general throughout the month, being heaviest on the 16th and 17th, 21st and 22nd and the 29th and 30th.

(9) In the Central Provinces more or less rain fell daily throughout the month, but as no cyclonic storms passed over the province during the month the rainfall was generally light.

(10) In Berar, there were three well defined periods of rainfall, *viz.*, from the 1st to the 9th, from the 13th to the 19th, and from the 22nd to the 27th. Some heavy falls were received during the second period.

(11) On the Konkan, a heavy burst of rain commenced on the 3rd, heaviest in the south, which lasted till the 7th, after which, as the Arabian Sea currents fed into the Kathiawar depression, the rainfall in the Konkan diminished somewhat. On the 13th the monsoon currents strengthened rapidly and continued very vigorous till the 17th and during this period some heavy falls were received. On the 18th the winds began to fall off and continued below their normal strength during the remainder of the month. During this period the rainfall was generally much lighter than usual.

(12) In the Bombay Deccan and Khandesh, only light showers were received during the first five days, as at this time the winds on the West Coast were forming part of the cyclonic circulation round the depression in the east of the Arabian Sea and were not advancing inland to any great extent. From the 6th to the 11th fairly general rain was received. During this period the development of the depression was affecting the winds over a wider area and causing a rush of sea winds over the greater part of the Deccan. A partial break followed on the 12th and 13th as the depression filled up over Kathiawar. Rain was again fairly general from the 14th to the 17th, some very heavy falls occurred on the 16th and 17th. Rain was also fairly general from the 19th to the end of the month.

(13) In Gujarat and Kathiawar, fairly general moderate to heavy rain was received from about the 6th to the 10th or 11th. A very heavy fall was reported from Porbundar on the 9th. The rainfall fell light about the 12th and 13th, but came on again about the 14th or 15th, some very heavy downpours being received in the Surat district on the 16th and 17th.

(14) On the Malabar Coast the rainfall was unusually heavy, the periods of heaviest rainfall being from the 2nd to the 10th, from the 13th to the 18th, and the 29th to the 31st.

The rainfall of the month was in serious defect only in the North-West Frontier districts, the Indus Valley and North-West Rajputana, where only a quarter of the normal fall was received. Slight to moderate defects occurred in the Deccan, the Upper Sub-Himalayas and in Assam, and moderate to considerable excesses on the West Coast, and in Bengal and Orissa. The following table gives data for eleven rainfall provinces of India :—

Meteorological Province.	Rainfall.			
	Mean actual for July 1902.	Mean normal for July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	29·40	31·41	+ 0·05*	0
Burma Inland	8·63	8·31	+ 0·32	+ 4
Assam	16·24	17·01	— 2·03*	—12
Bengal and Orissa	18·14	14·56	+ 3·58	+25
Gangetic Plain and Chota Nagpur	14·48	12·30	+ 2·18	+18
Upper Sub-Himalayas	8·76	10·73	— 1·61*	—15
North-West Frontier, Indus Valley and North-West Rajputana.	0·77	3·02	— 2·25	—75
East Rajputana, Central India and Gujarat.	8·71	10·08	— 0·80*	— 8
Deccan	7·80	9·80	— 2·00	—20
West Coast	40·26	28·58	+11·68	+41
South India	5·16	4·69	+ 0·47	+10

* A reference to Table I will show that the means in columns 2 and 3 are derived from a smaller number of stations than the mean in the 1st column. The sum of the figures in columns 2 and 3, therefore will not agree with the figures in column 1.

JOHN MURRAY.

Atmospheric Pressure.

The mean 8 A.M. pressure of the Indian land area averaged ·017 inch in defect of the normal. The local variations from this general condition were small over by far the greater part of the country, thus showing that the relative distribution of pressure differed but little from the normal.

Pressure was in local excess in the sub-montane districts of Northern India, Cachar, the east and south of the Peninsula, Ceylon and Burma, and in defect over the remainder of India.

The anomalies were less than ·020″ in amount except at the stations for which data are given below:—

STATION.	Positive anomaly, July 1902.	STATION.	Negative anomaly, July 1902.
	″		″
Moulmein	+·037	Nowgong	—·027
Mergui	+·035	Agra	—·025
Tavoy	+·031	Bombay	—·027
Toungoo	+·030	Poona	—·023
Bassein	+·029		
Mandalay	+·027		
Minbu	+·026		
Yamethin	+·021		
Trevandrum	+·027		
Tinnevelly	+·023		

These data indicate that the excess was, on the whole, greatest in Tenasserim, and the defect in Bundelkhand and the North Konkan.

Similar abnormal pressure conditions obtained in July 1884.

The eastern half of the monsoon trough of low pressure lay somewhat further north than usual, its axis running from Gaya through Benares, Cawnpore, Mainpuri and Meerut, instead of from Ranchi through Allahabad, Agra and Delhi as is ordinarily the case in July.

The variations of pressure from the normal at the hill stations in Northern and Central India were almost identical with those of the neighbouring plains, and the vertical anomalies were hence small and of no importance. Pressure was, on the other hand, in considerable excess at Quetta relatively to Jacobabad.

The following gives the vertical anomalies as determined from ten pairs of stations:—

HILL STATION.	Variation from normal pressure, July 1902.	PLAIN STATION.	Variation from normal pressure, July 1902.	Vertical pressure anomaly (Hill-Plain).
	″		″	″
Quetta	+·006	Jacobabad	—·037	+·043
Leh	—·019	Lahore	—·012	—·007
Murree	—·018	Peshawar	—·009	—·009
Simla	—·003	Ludhiana	—·021	+·018
Chakrata	—·013	Roorkee	—·017	+·004
Ranikhet	—·016	Bareilly	—·017	+·001
Darjeeling	—·025	Dhubri	—·011	—·014
Pachmarhi	—·016	Hoshangabad	—·022	+·006
Mount Abu	—·007	Deesa	—·022	+·015
Wellington	0	Coimbatore	—·003	+·003

Pressure was normal in West Persia and Arabia and in slight defect in East Persia, East Africa and at the Seychelles and Mauritius. It was, on the other hand, ·044″ in excess at Perth in West Australia, a decrease of ·051″ since June.

The mean pressure distribution in the month under review in the Indian land area was hence characterized by the following features:—

1st.—General deficiency of pressure by amounts averaging ·017″ for the whole area

2nd.—Local excess of pressure along the foot of the Himalayas and in Cachar, Burma, the east and south of the Peninsula and Ceylon, small in amount except in Lower and Central Burma, Tenasserim, and the extreme south of the Peninsula where it ranged between ·021″ and ·037″.

3rd.—Local deficiency over the remainder of the country, most marked in Bundelkhand and the North Konkan.

4th—The displacement of the eastern and central portions of the trough of low pressure from the south to the centre of the Gangetic Plain.

5th.—(*a*) Approximately normal conditions at the level of the hills in Northern and Central India.

(*b*) A considerable local excess of pressure in the atmospheric strata over Baluchistan.

Barometric depressions and cyclonic storms of the month.

At the opening of the month pressure was in slight defect in the southern half of the Peninsula, Ceylon and the neighbouring sea area, and above the normal over the remainder of the country. The excess was most marked in the Central India Plateau, where it averaged a tenth of an inch in amount. Gradients were hence unusually feeble, more especially over the southern half of the Indian region, and the air motion was about 20 per cent. below its normal, intensity in the Arabian Sea.

The following table giving the actual and normal range of pressure between Colombo and Bombay on the one side, and Colombo and Saugor Island on the other, shows the abnormal character of the pressure conditions obtaining, at this time:—

PRESSURE DIFFERENCE BETWEEN COLOMBO AND BOMBAY.			PRESSURE DIFFERENCE BETWEEN COLOMBO AND SAUGOR ISLAND.		
Actual, 1st July 1902.	Normal, 1st July.	Variation from normal.	Actual, 1st July 1902.	Normal, 1st July.	Variation from normal.
″·098	″·164	—″·066	″·208	″·297	—″·089

Light airs and calms obtained on the west coast, and little or no rain was falling in the interior of the peninsula. A large diffused low pressure area lay over Bihar, Chota Nagpur and the neighbouring districts of the Central Provinces, and was determining moderate rain to Orissa and South-East Bengal. Elsewhere in Northern and Central India weather was fine with a few scattered showers of little value.

An important change was, however, in progress over the south of the Arabian Sea where moderate to strong monsoon winds obtained and were advancing north-eastwards towards the west coast of India.

Pressure increased generally over Northern India during the next three days, thus emphasizing the excess already obtaining in that area. In the Peninsula, on the other hand, pressure gave way slowly during this period and on the morning of the 4th was either normal or in slight defect. Notwithstanding the large decrease in the intensity of the barometric gradients over India resulting from these changes, winds intensified in the Arabian Sea during this period and extended to the Bombay coast, thus terminating the prolonged break which had obtained in that area since the 17th of the previous month.

The following statement, giving the total range of pressure over the Indian land area and the mean strength of the air motion over the Arabian Sea for the period the 1st to the 4th, shows clearly that the actions determining the advance of the monsoon currents over the Arabian Sea had their seat not in India, but in the sea area to the south:—

DATE.	Total range of pressure over Indian land area.	Mean intensity of winds in the Arabian Sea.
	"	
1st July	·413	3·8
2nd ,, ...	·394	4·4
3rd ,, ...	·357	4·8
4th ,, ...	·309	4·7

The following table, giving the most noteworthy daily rainfall amounts, shows the character of the burst accompanying this large advance of the monsoon currents:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
RATNAGIRI . . .	Malvan . . .	3rd . .	14·57
	Vengurla . . .	,, . .	13·20
NORTH KANARA . .	Karwar . . .	,, . .	12·05
	Bhatkal . . .	,, . .	10·78
	Honavar . . .	,, . .	9·90
	Ankola . . .	,, . .	9·82
	Kumta . . .	,, . .	7·13
SAVANTVADI . . .	Kudal . . .	,, . .	7·90
SOUTH CANARA . .	Coondapur . .	3rd . .	9·90
	Baindur . . .	,, . .	8·76
	Udipi . . .	,, . .	7·29
NORTH KANARA . .	Ankola . . .	4th . .	6·90
	Karwar . . .	,, . .	6·03
SOUTH CANARA . .	Udipi . . .	,, . .	6·62
MALABAR . . .	Payyanur . . .	5th . .	7·58
SOUTH CANARA . .	Hosdrug . . .	,, . .	9·05
	Mangalore . .	,, . .	7·04
	Mangalore . .	6th . .	9·30
	Hosdrug . . .	,, . .	8·18
	Kasaragod . .	,, . .	7·64

These data are interesting as showing that the burst was heaviest on the southern half of the Konkan coast. As this was also the case on the occasion of the first advance in June, it indicates the existence of the same abnormal pressure features.

Weather was squally in front of the advancing current and, as frequently happens, a shallow depression formed in the region of disturbed weather off the Konkan Coast on the 5th. The disturbance marched slowly northwards and passed into Kathiawar on the afternoon of the 7th. It intensified slowly on the 8th and 9th without changing its position appreciably. A brisk to rapid increase of pressure occurred on the 10th, and before the morning of the 11th the disturbance had filled up and disappeared completely. The depression failed to concentrate into a cyclonic storm and was hence throughout little more than a wave of low pressure such as in three years out of four accompanies the advance of the monsoon current over the Arabian Sea. It, however, gave much-needed rain to Gujarat.

The following pressure variation data for six stations from the 5th to the 10th indicate the intensity and northward movement of this low pressure wave:—

STATION.	VARIATION FROM NORMAL OF 8 A.M. PRESSURE.					
	5th July.	6th July.	7th July.	8th July.	9th July.	10th July.
	"	"	"	"	"	"
Karwar . . .	−·095	−·108	−·082	−·073	−·093	−·120
Ratnagiri . . .	−·091	−·147	−·123	−·110	−·109	−·100
Bombay . . .	−·069	−·166	−·187	−·168	−·141	−·115
Surat	−·040	−·110	−·161	−·157?	−·182	−·116
Veraval . . .	−·023	−·096	−·131	−·230	−·228	−·129
Rajkot . . .	+·015	−·067	−·090	−·147	−·183	−·150

The following table giving the rainfall registered daily at the same stations shows clearly the northward exten-

sion of the humid currents in the rear of the disturbance:—

STATION.	RAINFALL DURING 24 HOURS PRECEDING 8 A.M. OF					
	5th July.	6th July.	7th July.	8th July.	9th July.	10th July.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Karwar . . .	0·58	2·99	4·95	0·93	1·08	2·12
Ratnagiri . . .	1·27	0·98	2·64	1·91	0·29	0·24
Bombay . . .	0·08	0·48	3·10	1·54	0·48	0·25
Surat . . .	0	0·11	0·09	0·70	0·88	0·44
Veraval . . .	0	0·14	0·06	0·50	3·15	2·19
Rajkot . . .	0	0·03	0	0·03	0·05	0·56

The period from the 5th to the 12th was marked by large and rapid changes of pressure in Northern India and the Bay of Bengal. On the 5th pressure was over a tenth of an inch in excess in Upper Burma, Bengal and Assam, on the one hand, and in the Punjab, on the other, and abnormal south-east winds obtained over the east and north of the Bay and were continued across Bengal and Bihar into the Gangetic Plain. Moderate to strong south-west winds were at the same time advancing up the south-west of the Bay, and there was a feeble tendency to the formation of a cyclonic whirl off the Circars Coast in the region between the south-east and the south-west winds. The barometric changes during the next 24 hours accentuated considerably the abnormal conditions in Northern India and Burma, so that at 8 A.M., of the 6th pressure ranged from an eighth to a fifth of an inch above the normal over the greater part of that area. A small depression had formed off the North Circars Coast, which, passing quickly north-north-westwards, lay over the eastern districts of the Central Provinces at 8 A.M. of the 7th. It filled up there during the succeeding 24 hours.

A large downward movement of the barometer set in on the 7th and continuing during the next four days effected a complete change in the general distribution of pressure.

The following variation data of Tropical and Extra-Tropical India and Burma for the 6th and 12th illustrate the magnitude and character of the change:—

AREA.	VARIATION FROM NORMAL OF 8 A.M. PRESSURE.		Change during period.
	6th July.	12th July.	
	"	"	"
Burma	+·125	−·114	−·239
Extra-Tropical India . . .	+·094	−·118	−·212
Tropical India	−·050	−·067	−·017

It may be noted that a similar fall of pressure occurred during this period in Central Asia, Persia, Arabia, Europe and the Malay Peninsula, an indication that it was due to general and not local actions.

A remarkable feature of this period was the contrast in the strength of the air movement over the Arabian Sea and Bay of Bengal; due solely to the difference in the barometric gradients over the two areas.

The following data illustrate these features:—

DATE.	ARABIAN SEA.		BAY OF BENGAL.	
	Barometric gradient as measured by range of pressure on the West Coast.	Average wind force.	Barometric gradient as measured by range of pressure between Ceylon and the Bengal Coast.	Average wind force.
	"		"	
6th July . .	·213	3·9	·313	4·4
7th ,, . .	·233	4·0	·357	4·5
8th ,, . .	·228	3·2	·458	4·7
9th ,, . .	·199	3·3	·424	4·7
10th ,, . .	·206	3·0	·344	4·1
11th ,, . .	·296	4·4	·326	4·4
12th ,, . .	·364	5·0	·383	4·1
Normal strength of monsoon current in July.		4·0	...	4·6

On the 13th much steeper gradients than usual obtained over the Peninsula and North-West India, and the monsoon currents were from 10 to 20 per cent. above their normal strength in both the Bay of Bengal and Arabian Sea. The Bombay current was chiefly determined eastwards across the head of the Peninsula to the north-west of the Bay and there was hence much greater interaction than usual between the two currents in the north of the Bay and Lower Bengal. As is usual under these conditions, a depression formed at the head of the Bay, of which the following gives a history.

Cyclonic storm of the 13th to the 20th July in the Bay of Bengal.—The first indications of the formation of this storm were afforded by the observations of the 13th, on which day pressure was falling briskly in the north of the Bay and light easterly winds with fine weather obtained over Lower Bengal and the head of the Bay, conditions which usually precede the generation of a storm of the rains in that area.

14th July.—Pressure had given way slightly to briskly in North-East India and the north of the Bay and a low pressure area, in which pressure was about two-tenths of an inch below the normal, lay over Orissa, Lower Bengal and the head of the Bay. Winds ranged in force between 2 and 5 in the area of depression, and exhibited a well marked tendency to a cyclonic circulation. Strong south-west winds obtained over the rest of the Bay (*i.e.*, to the south of Lat. 18° N.) and weather was very disturbed with heavy to fierce squalls off the Circars Coast. Thus the S.S. *Mashona* in Lat. 15° 51′ N., and Long. 86° 28′ E.,

experienced westerly gales, force 9, with fierce squalls of wind and rain, and the S.S. *Kt. Bachelor*, in Lat. 13° 53′ N. and Long. 84° 41′E., experienced south-west winds of force 7 with heavy squalls and a rough sea. The weather at the Intermediate Station is thus described by Captain Woolward of the F. L. V. *Planet* :—

"*July 14th.*—This day weather has been unsettled since 8 hours. For about three days previously in early morning there have been sections of rainbows, and light continuous lightning all night in the north-west quarter. Small crabs on surface of water, a sure sign of coming dirty weather.

4 P.M.—Heavy north bank from north-east through north to west and west-south-west with ugly white Cu. in front, Ci. in motion from all parts of top of this bank and all this Ci. centres eastward or rather vanishes when in east quadrant. The whole of east horizon is cloudless, except low down and from south to south-west and west-south-west where C—un. have a very hard, bright look.

Sunset.—Except a low barometer no signs of cyclonic disturbance, just a bit of a north bank to west-north-west with occasional slight and high lightning."

The following gives 8 A.M. information extracted from the logs of vessels within the depression on this day :—

Name of Vessel.	8 A.M. Position.		Barometer, (corrected)	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Okara* .	17 38	86 37	29·394	SW	6	High sea; overcast. 4 A.M., hard squalls; noon, continuous rain squalls.
S.S. *Clan Ferguson*.	19 31	86 29	·340	NW	5	Heavy rain squalls.
S.S. *Khandalla*	20 08	87 05	·346	WSW	2	Following sea and fine ; midnight, rain squalls.
S.S. *Chanda* .	20 28	88 03	·351	NE	2	Heavy south-south-west swell and cloudy.
S.S. *Nuddea* .	21 10	88 22	·371	NE	2	South-west swell and passing clouds ; 4 P.M. occasional rain squalls.
S.S. *Kistna* .	21 22	90 27	·388	ESE	4	Heavy south swell and light showers; 4 A.M. light rain squalls.
S.S. *India* .	22 12	88 06	·362	NE	4	Dull cloudy; noon, passing showers.
S.S. *Kasara* .	22 12	91 48	·408	...	...	4 A.M. fine.

15th July.—Pressure had recovered in Burma and fallen briskly to rapidly over Bengal and the head of the Bay. The observations taken on the Arakan, Bengal and Orissa coasts at 8 A.M. of this day indicated the existence of a well-defined storm over the head of the Bay.

The following gives these observations :—

Station.	Pressure.			Wind			Rainfall.	Weather.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.		
	″	″	″				Inches	
Akyab .	29·427	—·007	—·227	S	4	10	5·81	Raining.
Chittagong .	·334	—·071	—·281	SE	6	9	1·18	Showery.
Barisal .	·291	—·107	—·272	NNE	3	1	0·01	
Jessore .	·298	—·104	—·256	SE	1	6	...	
Calcutta .	·290	—·103	—·245	NNE	6	10	0·37	
Saugor Island.	·251	—·121	—·279	NNE	8	8	0·98	Sea smooth.
Balasore .	·291	—·084	—·236	NNW	3	6	0·06	
False Point .	·332	—·049	—·216	W	12	10	1·65	
Cuttack .	·353	—·040	—·189	WSW	3	10	7·51	Raining.

The following observations recorded on board ships show even more clearly than the land data the position and character of the storm :—

Name of Vessel.	8 A.M. Position.		Barometer (corrected).	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Mashona* .	17 39	87 11	29·403	WSW	9	High sea and frequent heavy squalls.
S.S. *Okara* .	18 39	87 9	·344	SW	7	High sea and occasional heavy squalls.
S.S. *Purnea* .	18 50	90 43	·362	WSW	9	Heavy beam sea and cloudy. Noon, frequent violent rain squalls.
S.S. *Khandalla*	21 27	88 3	·256	...	...	4 A.M. occasional rain.
S.S. *Maharani* .	22 7	91 40	·324	ESE	3	Moderate sea and rain squalls.
S.S. *Kasara* .	22 10	91 44	·338	SSE	5	Slight sea and passing showers. Midnight, heavy squalls and rainy.

The combined sea and land observations show that the centre of the depression was probably in about Lat. 20° 50′ N. and Long. 88° 40′ E. at 8 A.M. of this day.

Winds had increased considerably in strength over the Bay, and now averaged 5·3 in force or 1·3 above the normal. Weather was squally over the whole of the Bay except in the extreme south where it was fine with much cloud. The squalls were on the whole most violent off the Circars Coast to the south of the storm. Moderate to heavy rain had fallen in Orissa and the Central Provinces, the burst being especially heavy in the

Cuttack, Angul and Puri districts, average data for which are given below :—

DISTRICT.	Average rainfall during 24 hours preceding 8 A.M. of 15th.
	Inches.
Cuttack	4·41
Angul	2·49
Puri	4·83

The following special observations recorded on board the F. L. V. *Planet* and at Saugor Island indicate the progress and the continued development of the storm during the day :—

F. L. V. Planet.

"*15th*—Sunrise dark blue all round horizon, more so to the west where ugly white Cu is in front of north bank.

8 A.M.—Indications of wind backing north-west as squalls inclined to go north and showers are passing north of ship. Slight south swell set in.

10 A.M.—Conditions noted at 8 A.M. gone. Wind steady.

Noon—Moderate squall, wind shifting to north and north-north-west.

2 P.M.—No squalls this last hour. Wind from north-north-west. Nimbus low with indigo blue and white all round except to north-north-west, north and north-north east.

2-30 P.M.—Clouds entirely cover sky and seem to have come just as low as it is possible for them to be.

2-45 P.M.—A break in clouds for about 5 minutes, letting sun out.

3 P.M.—Continuous heavy rain set in. No squalls, sea or swell.

4 P.M.—Rain ceased. Wind lulling and backing west. Another clearance in sky to east. In fact, not looking bad for so low a barometer.

4-30 to 5-30 P.M.—Very light west airs; almost a calm.

5-30 P.M.—Squalls from west-south-west, force 7, with heavy rain. From now up till 7 P.M. squalls gradually increased in force and frequency till it was full force 9, rain in squalls continuing heavy.

7 P.M.—Squalls took off to force 7 with drizzle only, and there is now low and frequent lightning with thunder, both in north-west.

9-30 P.M.—Squalls increased to force 10, and frequent with moderate drizzle only, and now heavy south-west sea and swell has come along.

10 P.M.—Lightning and thunder ceased.

Midnight.—Squalls, force 10, and frequent. Moderate drizzle. High south-west sea and swell. Wind south-west just before this time."

Saugor Island.

2 P.M.—Sea slight, wind (north) increased in force since last observation, coming in puffs or squalls.

5 P.M.—Sea slight, occasional drizzling-rain; wind (north-north-east) strong; overcast with rain; dark, gloomy weather.

8 P.M.—Sea rough; wind variable, veered to south-west since last observation, raining. Dark, gloomy weather, wind coming in squalls and variable.

These observations show that the storm centre passed over the F. L. V. *Planet* between 4-30 and 5-30 P.M. and across the coast about 8 P.M.

16th July—.After crossing the coast the storm advanced in a west-north-west direction, and at 8 A.M. of this day its central area was in Chota Nagpur and the neighbouring districts, where pressure had fallen rapidly.

The following data define its position at that hour :—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to Sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches.	
Balasore .	29·224	—·067	—·302	SSW	9	8	1·37	Showery.
Saugor Island .	·231	—·020	—·238	SSW	30	10	0·70	Sea very rough.
Calcutta .	·228	—·062	—·306	SSW	7	10	0·33	Showery.
Burdwan .	·212	—·093	—·320	E	8	10	0·06	Showery.
Bankura .	·164	—·142	...	E	4	10	0·70	Drizzling.
Raniganj .	·205	—·122	...	ENE	5	7	0·55	Passing clouds.
Hazaribagh	·253	—·093	—·267	N	11	10	0·59	Drizzling.
Ranchi .	·236	—·100	—·278	NNW	7	10	0·45	Showery.
Chaibassa .	·168	—·160	—·324	Calm	1	10	4·35	Raining.
Sambalpur .	·316	—·036	—·232	WSW	6	10	4·70	Raining.
Midnapur .	·196	—·111	...	SE	8	10	0·61	Dark gloomy.

The observations when charted show that the centre was in about Lat. 22° N. and Long. 86½° E. It had hence advanced about 175 miles during the previous 24 hours. Pressure was now upwards of three-tenths of an inch below the normal in the central area, and the disturbance was hence deeper than on the previous day. Winds had returned to their normal directions at the head of the Bay, and south-west winds, force 6 to 10, with violent squalls and a high sea now obtained over the northern half of the Bay. Moderate to heavy rain had occurred in Orissa, Chota Nagpur and the east of the Central Provinces.

The following gives the most noteworthy amounts recorded in these areas :—

AREA.	DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M of 16th.
			Inches.
ORISSA AND CHOTA NAGPUR.	ANGUL . .	Pal Lahara	7·58
	CUTTACK . .	Banki	7·36
	SINGHBHUM	Kharswan	7·39
		Serai Killa	7·18
		Kalikapur	5·56
	RANCHI . .	Sirguja	5·00
	PURI . . .	Khurda	4·92
CENTRAL PROVINCES.	SAMBALPUR	Bargarh	7·13
		Sambalpur	4·70

Only light rain had fallen to the north and east of the storm.

17th July.—Pressure had increased over the whole of the Indian region with the exception of Bundelkhand, Baghelkhand and the adjacent districts of the United and Central Provinces, where it had fallen to a moderate extent. The rise exceeded a fifth of an inch in amount in the area covered by the storm on the 16th. The storm had advanced through a distance of about 360 miles in a west-north-west direction during the past day, and was now central over the eastern districts of the United Provinces and of Central India. The deficiency of pressure at the centre was about a tenth of an inch less than on the previous day, and the storm had hence commenced to fill up.

The following gives 8 A.M. observations recorded at stations within the storm area :—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Ranchi .	29·371	+·135	—·149	S	13	10	2·05	Drizzling.
Hazaribagh	·374	+·121	—·157	SSW	16	10	1·04	Raining.
Daltonganj	·303	+·025	...	Calm	2	7	0·30	Dark gloomy.
Gaya . .	·328	+·043	—·190	S	7	9	0·09	Showery.
Dehri .	·316	—·022	...	SE	5	9	0·12	Drizzling.
Benares .	·272	—·056	—·212	E	5	10	0·53	Showery.
Allahabad .	·282	—·056	—·219	ENE	12	10	1·17	Continuous rain
Nowgong .	·300	—·041	—·218	N	2	10	1·67	Drizzling.
Sutna .	·280	—·061	—·226	ENE	6	10	2·64	Raining.
Saugor .	·359	—·028	—·190	NW	7	10	0·91	
Jubbulpore	·306	—·059	—·238	WSW	5	10	2·82	Raining.
Sambalpur .	·422	+·106	—·126	WSW	11	10	2·15	Continuous rain.

A strong monsoon obtained in the Bay, but was determined chiefly to North and East Bengal, and hence comparatively light rain had fallen to the east of the central storm area. Moderately heavy rain had, on the other hand, occurred in the Central Provinces, showing that the storm was now being maintained chiefly, if not solely, by the Bombay current.

An exceptionally heavy fall of 17·52 inches, due to a severe local storm or tornado, had occurred at Surat, causing floods and damage to property.

18th July.—Pressure had continued to increase during the previous 24 hours over the whole of the country except locally in the Punjab and the west and centre of the United Provinces. The fall in the former region was due to the north-easterly displacement and the intensification of the semi-permanent low pressure area in Upper India and, in the latter, to the advance of the cyclonic storm central near Sutna on the previous day. The following data show the position and character of the storm at 8 A.M.:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches.	
Sutna .	29·412	+·132	—·107	SSW	11	10	0·15	
Allahabad	·399	+·117	—·102	SE	9	10	0·20	Showery.
Lucknow .	·339	+·009	—·164	ESE	9	8	0·31	
Cawnpore .	·311	+·003	—·177	ENE	10	9	0·58	Showery.
Mainpuri .	·308	—·075	—·188	E	2	8	0·82	
Jhansi .	·312	—·038	—·210	W	10	8	2·87	Raining.
Nowgong .	·282	—·018	—·237	WSW	5	10	0·87	
Saugor .	·419	+·060	—·134	W	15	10	3·39	Continuous rain.

The centre of the storm was nearly midway between Cawnpore and Nowgong in about Lat. 25½° N. and Long. 79¾° E., and had advanced at an average rate of 7 miles per hour in a north-westerly direction since 8 A.M. of the 17th. Pressure was ·24″ below the normal at the centre, and hence in defect by about the same amount as on the previous day. The storm was hence unchanged in character and was a deepish disturbance with a well-defined cyclonic circulation. Winds were feeble in the central area, Agra, about 150 miles to the north-west of the centre, reporting a calm, and Nowgong, not more than 35 miles to the south-by-west, westerly winds of the velocity of 5 miles per hour.

Strong winds continued over the north of the Bay but were, as on the previous day, directed chiefly to North and East Bengal. The rainfall was hence light to moderate in Bihar, Chota Nagpur and the east of the United Provinces. Moderate to heavy general rain had been received in the Central Provinces, Central India, Rajputana, the west of the United Provinces, and on the west coast. Winds had, however, fallen off on the Konkan Coast and the in-draught to the storm from the west coast was hence diminishing.

19th July.—Pressure had increased over the whole of India, the rise being nearly two-tenths of an inch in Bundelkhand, where it was greatest. The storm had travelled north-north-westwards, during the previous 24 hours and was at 8 A.M. central a little to the south of Mainpuri in Lat. 27½°N. and Long. 79¼°E. The abnormal depression at the centre was only an eighth of an inch in amount, and the storm was hence now a shallow disturbance with feeble gradients except in the south quadrant where they were fairly steep. Westerly winds obtained in West Bihar, an indication that the Bay current had ceased to contribute to the maintenance of the storm. Winds were irregular in the United Provinces and the cyclonic circulation was hence now feeble.

The following gives 8 A.M. observations at stations in the storm area :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches.	
Lucknow .	29·445	+·106	—·062	SSE	8	10	0·07	
Bahraich .	·481	+·079	—·033	S	2	9	0·41	
Mainpuri	·373	+·065	—·127	Calm	1	10	0·15	
Bareilly .	·436	+·060	—·070	E	0	7	0·12	Showery.
Meerut .	·443	+·067	—·058	NE	2	10	1·50	
Agra .	·407	+·082	—·100	SW	5	10	2·48	Continuous rain.
Jhansi .	·476	+·164	—·042	W	10	5	0·89	

Winds had taken off considerably in the Arabian Sea and were now at least 20 per cent. weaker than usual. The storm had given moderate rain during the previous 24 hours in the western and southern quadrants, while only light showers had fallen to the east.

The storm filled up completely during the day at the foot of the Kumaon Himalayas.

The following table gives the position of the storm centre at 8 A.M. of each day from the 15th to the 19th, and its average daily rate of advance :—

DATE.	POSITION OF CENTRE AT 8 A.M. Lat. N.	POSITION OF CENTRE AT 8 A.M. Long. E.	Distance travelled during interval.	Average hourly rate of motion during interval.
	° ′	° ′	Miles.	Miles.
15th	20 50	88 40		
16th	22 10	86 35	175	7
17th	24 15	81 45	360	15
18th	25 37	79 45	160	7
19th	27 15	79 15	125	5

The storm originated at the head of the Bay on the 12th and 13th when strong monsoon winds obtained both in the Bay of Bengal and the Arabian Sea and when the Bombay current was determined more largely than usual to West Bengal and the north of the Bay. It commenced to move west-north-westwards on the 15th, and crossed the Bengal coast between Balasore and Saugor Island on the evening of that day. It thence marched with increasing velocity through Chota Nagpur during the next thirty-six hours, and at 8 A.M. of the 17th was in Baghelkhand. It changed its course during the next 24 hours and, marching through the central districts of the United Provinces, broke up at the foot of the Kumaon hills during the 19th. It was a storm of moderate intensity and gave moderately heavy rain along its path.

The rainfall was excessive over Orissa on the 15th and 16th and caused heavy floods which breached the Bengal-Nagpur and East Coast Railway lines in several places. The storm was maintained almost exclusively by the Bombay current during its passage across Northern India.

On the 20th pressure was above the normal over the whole of India except along the base of the Himalayas, and the trough of low pressure lay much further north than usual, running from North Bengal to the West Punjab. Fairly general rain had occurred in Bengal, Assam, the Central Provinces and the Gangetic Plain. In the last area the precipitation was moderately heavy in the Allahabad, Banda and Fatehpur districts, and a shallow depression formed in that region during the next 24 hours. It was central near Benares on the morning of the 21st, about 60 miles to the west-north-west of Allahabad on the 22nd, and a little to the east-south-east of Cawnpore on the 23rd. It was displaced slightly eastwards during the next 24 hours, an unusual occurrence but probably due to the fact that the depression was solely maintained by the Bombay current. At 8 A.M. of the 24th it covered the area defined by the stations of Gorakhpur, Bahraich, Cawnpore and Benares. It apparently filled up in that area during the day.

It was, throughout, a very slight and ill-defined disturbance, but determined moderate to heavy rain to the greater part of the United Provinces and the eastern states of Central India.

The following gives the most noteworthy falls recorded in these areas during this period :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
ALLAHABAD . .	Sirathu . . .	21st . .	11·42
JHANSI . . .	Magarwara . .	" . .	5·10
BUNDELKHAND .	Simariya . . .	" . .	5·10
	Nowgong . . .	22nd . .	9·16
	Panna . . .	" . .	6·27
	Shahanagar . .	" . .	5·20
BHOPAL . . .	Kurwai . . .	" . .	7·60
KOTAH . . .	Atroo . . .	" .	7·46
JHANSI . . .	Narhat . . .	23rd .	5·05
ALMORAH . .	Chaukuri . . .	24th . .	8·70
	Purana Thal . .	" .	5·52
	Pirpulta . . .	25th . .	7·16
GORAKHPUR . .	Mahrajganj . .	" . .	6·70
BHOPAL . . .	Narsinghgarh . .	" .	6·35
BAREILLY . . .	Oganpur . . .	" . .	6·10
PILIBHIT . . .	Pilibhit City . .	" . .	6·00
SITAPUR . . .	Biswan . . .	" . .	5·14

The Bombay current was unusually feeble during the period from the 19th to the 23rd, due largely to the feebleness of the barometric gradients over the south of the Arabian Sea and the north of the equatorial belt. The following data illustrate these features :—

DATE.	RANGE OF PRESSURE BETWEEN SEYCHELLES AND MINICOY.		STRENGTH OF AIR MOVEMENT.			
			ARABIAN SEA.		SEYCHELLES.	
	Actual.	Variation from normal.	Actual (Beaufort scale).	Variation from normal.	Actual (miles an hour.)	Variation from normal.
	"	"				
19th	·037	—·094	3·6	—1·0	9	—3
20th	·052	—·079	3·7	—0·9	13	+1
21st	·066	—·065	3·4	—1·2	17	+5
22nd	·078	—·053	3·5	—1·1	13	+1
23rd	·084	—·047	3·8	—0·8	15	+3

A general fall of the barometer commenced on the 24th and, continuing during the next two days, reduced pressure largely below the normal in Northern India and the north of the Bay, and to about normal in the Peninsula. On the 26th pressure was ·14″ in defect in South-East Bengal, and about ·04″ in excess on the Konkan Coast, thus giving an abnormal gradient of nearly two-tenths of an inch between these two areas. In consequence of this distribution the Bombay current was determined eastwards to Lower Bengal and the head of the Bay. The Bay of Bengal current was stronger than usual and was giving moderate to heavy rain to Bengal. The interaction of the two currents gave rise to a depression over Lower Bengal and the head of the Bay during the day.

The following gives a brief account of the storm thus initiated :—

Cyclonic storm of the 27th July to the 2nd August.—Pressure gave way briskly locally in Lower Bengal during the 24 hours succeeding 8 A.M. of the 26th, and a shallow depression formed in that area.

The following observations show its character and position at 8 A.M. of the 27th :—

STATION.	PRESSURE.			WIND.			RAINFALL.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.		
	"	"	"				Inches	
Barisal .	29·357	—·072	—·194	S	2	10	0·39	
Calcutta .	·350	—·069	—·180	Calm	2	10	0·08	Thunder.
Midnapore .	·366	—·049	...	N	3	10	2·67	Dark gloomy.
Burdwan .	·356	—·067	—·172	ENE	2	10	0·61	Thunderstorm.
Chaibassa .	·366	—·056	—·143	SW	3	10	0·70	Showery.
Saugor Island.	·321	—·086	—·200	SW	18	10	2·17	Sea very rough.
Balasore .	·395	—·041	—·135	WSW	5	10	2·63	Raining.
False Point	·462	+·016	—·082	WSW	18	10	4·26	Continuous rain.

The data indicate that a closed low pressure area, in which pressure was from a seventh to a fifth of an inch below the normal, lay over South-West Bengal. Heavy rain had fallen in Orissa, and moderate rain over the remainder of Bengal and the east of the United Provinces.

The Bombay current was feeble in the east of the Arabian Sea and had given little or no rain in the usual area of its extension.

28th July.—Pressure had increased to a slight extent in Assam and the eastern half of Bengal, and fallen in Bihar, Chota Nagpur and the neighbouring districts of Bengal. The depression had extended considerably and now covered the whole of the Bengal Presidency. The storm area, as defined by the isobar of 29·40″, was oval-shaped, about 550 miles long and 250 miles broad, and the range of pressure in that area, as shown by the available data, was less than ·07″. Winds over the whole of North-East and Central India were now controlled by the depression and showed convergence to a centre in about Lat. 23° N. and Long. 87° E.

The following data define its position at 8 A.M. :—

STATION.	PRESSURE.			WIND.			RAINFALL.	WEATHER
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.		
	"	"	"				Inches.	
Calcutta	29·371	+·021	—·161	SSW	6	10	0·54	Showery.
Burdwan .	·359	+·003	—·170	SE	2	10	0·15	Thunderstorm.
Bankura .	·335	—·020		ENE	1	10	0·30	Dark gloomy.
Raniganj .	·362	—·027	...	ESE	1	7	1·39	Passing clouds.
Ranchi .	·368	—·021	—·145	WNW	10	10	1·03	Drizzling.
Chaibassa	·376	+·010	—·139	WSW	2	10	3·70	Raining.
Midnapore	·367	+·001	...	S	5	10	0·77	Drizzling.
Saugor Island.	·358	+·037	—·163	SSW	36	10	0·88	Gale.
Jessore .	·398	+·038	—·145	SE	3	10	0·21	Showery.
Berhampore.	·372	—·011	—·166	E	8	8	0·32	Do.
Darbhanga	·397	—·027	—·128	ESE	5	5	0·23	
Patna .	·392	—·031	—·125	SE	7	10	0·28	Showery.
Benares .	·372	—·002	—·133	NE	3	10	1·10	
Gaya .	·376	—·022	—·136	E	6	8	1·75	
Hazaribagh.	·378	—·030	—·147	E	11	10	1·03	

Moderately heavy rain had again been received in Bengal and moderate rain in the east of the United Provinces and of Central India, but there had been no rain of any consequence in the Peninsula and North-Western India (excepting the sub-montane districts).

29th July.—The storm had advanced through a distance of about 315 miles in a west-north-westerly direction during the previous 24 hours, and its central area now lay over the east of the United Provinces and Baghelkhand,

The following gives 8 A.M. observations taken in this area—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches.	
Hazaribagh.	29·468	+·090	—0·68	SSE	8	10	1·19	Showery.
Gaya .	·454	+·078	—0·60	NE	5	6	1·21	Continuous rain.
Buxar .	·451	+·070	...	E	13	10	0·47	Overcast.
Arrah .	·448	+·048	...	SE	6	7	0·20	Sultry.
Benares .	·413	+·041	—0·93	ENE	3	10	2·73	
Allahabad	·418	—·015	—0·84	ENE	8	10	2·04	Thunderstorm.
Nowgong	·462	—·007	—0·65	WNW	1	10	2·00	Drizzling.
Sutna .	·429	—·047	—0·98	WNW	7	10	0·90	Do.
Jubbulpore.	·469	—·003	—0·81	WSW	6	10	1·15	Showery.

The data show that the storm was a shallow disturbance with feeble gradients, and that the centre was now probably in about Lat. 24½° N. and Long. 82½° E. Moderate to heavy rain had fallen in the storm area, including Chota Nagpur, South Bihar, Bundelkhand, Baghelkhand and the eastern and central districts of the United Provinces, and moderate showers in the eastern half of the Central Provinces. The Bengal current was now diverted to Burma, and the rainfall was hence falling off in North-Eastern India. On the other hand, the in-draught from the Arabian Sea was increasing in intensity and volume.

30th July.—Pressure had increased generally in India, the rise being most marked in Chota Nagpur and the Central Provinces. It had fallen slightly to briskly in Bundelkhand and the central districts of the United Provinces. The depression had advanced westwards about 205 miles since 8 A.M. of the 29th and was now central near Nowgong where pressure was a little over a tenth of an inch below the normal.

The following 8 A.M. data indicate its position :—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Sutna .	29·492		—·038	WSW	9	10	1·40	Continuous rain.
Allahabad .	·493	+·075	—·011	SE	11	10	0·32	Thunderstorm.
Cawnpore .	·429	—·037	—·062	NE	8	10	0·17	Drizzling.
Jhansi .	·438	—·065	—·085	NE	4	4	5·24	Coutinuous rain.
Nowgong .	·420	—·042	—·107	SW	2	10	5·25	Do.
Saugor .	·522	—·002	—·039	W	10	9	0·34	

The depression, although slightly deeper than on the previous day, was, as hitherto, a large and shallow disturbance with slight gradients except to the south.

Moderate to heavy rain had fallen in the eastern districts of Central India and East Rajputana, and light to moderate rain over the northern districts of the Central Provinces and the central and western districts of the United Provinces.

The following gives the heaviest falls in the storm area during the previous 24 hours :—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 30th.
		Inches.
BUNDELKHAND .	Chhatarpur	5·91
	Nowgong	5·25
GWALIOR . . .	Pichhor	5·28
KOTAH . . .	Sangod	5·90
	Shahabad	5·05
KARAULI . . .	Sapotra	5·15
JAIPUR . . .	Siwai Madhopur	5·15
JHANSI . .	Barwasagar	7·00
	Jhansi	6·86
	Magarwara	5·25
HOSHANGABAD .	Pachmarhi	2·32

The Bay current had given rain almost solely to Burma, Bengal and Assam.

31st July.—The storm had intensified slightly but was practically unchanged in position.

The following gives data showing its position and intensity at 8 A.M.:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Nowgong .	29·394	—·026	—·231	S	6	10	0·04	
Cawnpore .	·453	+·024	—·041	S	7	10	0·15	Showery.
Lucknow .	·474	+·018	—·037	SE	7	7	0·12	
Agra . .	·413	—·049	—·101	SE	5	10	1·90	Do.
Jaipur .	·491	—·070	—·047	WNW	3	8	0·50	
Jhansi .	·341	—·097	—·180	SE	8	6	2·31	Continuous rain.
Kotah .	·488	—·074	...	W	6	10	1·25	Do.

The storm was now central near Jhansi and had hence advanced only about 80 miles during the past day. It covered a somewhat smaller area and was hence slightly more concentrated than on the previous day.

Strong south-west winds prevailed on the Sind and Kathiawar Coasts and were feeding into and giving moderate rain to the storm area.

The Bay current had taken off considerably in intensity and was giving rain chiefly to Bengal Proper and Assam. Winds were much below their normal strength along the Konkan and Malabar Coasts and little or no rain had fallen in the interior of the Peninsula.

1st August.—Pressure had increased briskly to rapidly in the area covered by the storm on the 31st of July, and had fallen briskly in the western districts of the United Provinces to which the storm had now advanced. The following observations show its position and character at 8 A.M. :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Cawnpore .	29·498	+·045	—·001	SE	7	10	0·20	
Agra . .	·316	—·097	—·200	SE	6	10	1·97	Raining.
Mainpuri .	·410	—·001	—·095	E	8	10	1·20	
Bareilly .	·459	—·008	—·052	SE	9	10	0·42	Showery.
Meerut .	·466	—·001	—·040	NE	2	10	0·72	
Delhi .	·458	—·010	—·047	NE	8	10	0·64	Showery.
Jaipur .	·478	—·013	—·066	W	5	10	...	Thunder.
Jhansi .	·457	+·116	—·069	SSW	12	4	0·40	

The storm was, as hitherto, oval-shaped, but the longest diameter now rain north-east and south-west, an indication that it was changing in direction. The centre of the depression, at which pressure was a fifth of an inch below the normal, was close to Agra in Lat. 27° N. and Long. 77¾° E.

General rain had fallen in the storm area but was only light to moderate in amount.

Weather was fine to the south and east of the storm area, *i.e.*, in the Central Provinces and the east of the Gangetic Plain.

2nd August.—Pressure had increased from ·1″ to ·2″ in the western and central districts of the United Provinces and fallen slightly in the submontane districts. The storm had filled up very considerably and the residual depression now lay over Rohilkhand and the neighbouring districts. The following observations indicate its character at 8 A.M. :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches.	
Bareilly .	29·483	+·024	—·035	SW	7	10	1·70	Showery.
Ranikhet .	...	—·040	—·061	E	4	10	1·79	Continuous rain.
Meerut .	·466	0	—·048	Calm	6	10	5·72	
Roorkee .	·501	—·034	—·031	Calm	3	10	3·20	Do.
Delhi .	·495	+·037	—·017	NW	7	10	2·50	Do.
Agra . .	·525	+·209	+·006	SW	8	4	1·19	
Mainpuri .	·516	+·106	+·013	W	3	8	0·58	

The cyclonic circulation was still fairly well marked though feeble. The centre of the residual disturbance was to the north-north-west of Bareilly in Lat. 29° N. and Long. 79¼° E., and had hence travelled about 170 miles in a north-easterly direction during the previous 24 hours.

Moderate to heavy rain had fallen in the area covered by the depression and light rain in the eastern and central districts of the United Provinces.

The following gives amounts exceeding 6 inches :—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 2nd August.
		Inches.
Bijnor . . .	Bijnor	9·08
	Najibabad	9·05
	Nagina	6·91
Meerut . . .	Hapur	8·80
	Mawana	6·07
Muzaffarnagar .	Muzaffarnagar	8·55
	Jaoli-Jansath	6·48
Bulandshahar	Bulandshahar	7·25
Garhwal . .	Lansdowne	7·10

Beyond a few local showers of little value no rain had fallen in the interior of the Peninsula, the Indo-Gangetic Plain East and Upper India.

The storm broke up rapidly during the day and there was no trace of its existence in the chart of the 3rd.

The following gives the position and rate of advance of the storm centre from the 27th July to the 2nd August :—

DATE.	POSITION OF CENTRE AT 8 A.M.		Distance travelled in 24 hours.	Average hourly rate of motion.
	Lat. N.	Long. E.		
	° ′	° ′	Miles.	Miles.
27th July . . .	22 0	88 0	...	...
28th ,, . . .	23 0	86 55	105	4
29th July . . .	24 30	82 30	315	13
30th ,, . . .	25 15	79 25	205	9
31st ,, . . .	25 30	78 15	80	3
1st August . . .	27 2	77 45	115	5
2nd ,, . . .	29 0	79 15	170	7

The storm was an example of a class of disturbances which diminish rapidly in intensity as their distance from the Bengal Coast increases, but redevelop when the Bombay current begins to feed into them.

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

I.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Kashmir.*—Light snow fell on the higher hills adjacent to Gulmarg on the 26th. Dr. Mittra, Meteorological Reporter, Kashmir, summarizes the weather in Kashmir during the period June and July as follows :—

"There has not been any heavy snowfall on the higher mountains near Kashmir in June and up to the 25th of July. The Pir Panjal, between Kashmir and the plains, and also the higher mountains on the Gilgit Road received a certain amount of snow during the period."

(2) *Lahoul.*—Light snow fell on the higher ranges above 15,000 feet on three occasions during the month.

(3) *Simla Hills.*—There were four light falls on elevations above 14,000 feet. The Deputy Conservator of Forests, remarks: "So far as my experience goes, such snowfalls are unusual, but they do not seem to have interfered with rainfall, which throughout July has been more than the average at Kilba."

(4) *Chamba.*—Moderate falls of snow occurred on the Sach Pass (elevation 14,400 feet on the 9th and 13th. The snow line, however, did not descend lower than 11,000 feet.

II.—UNITED PROVINCES HIMALAYAS.

(1) *Almora.*—Snow fell on eight days during the month in Malla Johar and on two days in Malla Danpur, the fall amounting to 10 feet in the former, and 6 inches in the latter area. The snowfall is believed to be greater in amount than in the corresponding period of the previous year.

(2) *Garhwal.*—A few slight falls occurred on the most elevated peaks in the first nineteen days of the month.

The Deputy Commissioner remarks : "There are no indications that there have been any abnormal falls of snow on the upper ranges since the beginning of July."

Summary of snowfall information for the period June and July.—No reports have been received from officers on the North-West Frontier and it is almost certain that little or no snow has fallen on the higher elevations in Afghanistan.

There were occasional falls of snow in June on the higher hills in Kashmir, Chitral and Kumaon, and on the interior ranges of the Simla Hills. The snowfall in the Pabar Valley (Simla hills) on the 22nd was unusual, as snow seldom falls in that valley in the second fortnight of June.

In July the snowfall was very light and was restricted to a small area in Simla, Chamba, Kashmir and Kumaon.

The available information hence indicates that during the period little or no snow fell on the higher ranges of the Western Himalayas but that light to moderate snow was received on the Kumaon, Chamba and Simla hills and in Kashmir. The falls were, however, probably too local to exercise any general effect on the meteorology of North-Western India.

Summary of Special Storm Reports.

The following gives a statement of the chief local storms of which reports were received from the observing stations :—

1st.—Duststorm at Hoshangabad at 6-10 P.M. It came from the south-west and lasted about twenty minutes.

Duststorm at Ludhiana from 2-15 P.M. to 3-15 P.M. It came from the south-east.

2nd.—Duststorm at Hoshangabad at 9-10 P.M.

Duststorm at Ludhiana from 4-20 P.M. to 6-20 P.M. It came from the north-east.

Thunderstorm at Simla between noon and 4 P.M.

4th.—Duststorm at Jodhpur from the north-east at 5-1 P.M.

Nor' wester with rain at Khandwa at 11-30 P.M.
Thunderstorm at Ludhiana from 2-5 to 3-35 P.M.

5th.—Duststorm at Lahore from 9-25 A.M. to 10 A.M.
Thunderstorm at Ludhiana at 1-20 P.M.
Thunderstorm at Srinagar between 7 and 9 A.M.

6th.—Severe duststorm at Jodhpur at 0-11 P.M.: 14·5 miles of wind were registered by the anemometer between 0-11 P.M. and 0-31 P.M.

7th.—Thunderstorm at Srinagar at 8-30 P.M.

8th.—Thunderstorm at Simla from 0-20 P.M. to 1-15 P.M. Winds were unusually light during the storm, only 5 miles having been registered in the interval between noon and 1 P.M.

11th.—Thunderstorm at Allahabad between 8 P.M. and 8-30 P.M.

13th.—Thunderstorm at Simla between 11 A.M. and 1 P.M. It came from the west-north-west.
Thunderstorm at Gulmarg from 1 P.M. to 6 P.M. Hail fell on the surrounding hills killing five sheep and two horses.

16th.—Thunderstorm at Jaipur from 4-15 P.M. to 4-30 P.M.

17th.—Duststorm at Ludhiana from the south-east at 3-10 P.M.

21st.—Thunderstorm at Simla. It came from the south-west and lasted from 7 to 9 P.M. The total amount of wind recorded during the storm by the anemograph was only 5 miles.

23rd.—Thunderstorm at Srinagar at 10 P.M.

25th.—Thunderstorm at Srinagar at 5 P.M.
Thunderstorm at Simla at 10-20 P.M.
Severe thunderstorm at Lucknow lasting from 6-30 P.M. to 7-30 P.M. The violent wind accompanying the storm blew down hundreds of trees.

26th.—Thunderstorm at Srinagar from 5 to 7 P.M.
Severe thunderstorm at Gulmarg between 3 P.M. and 5 P.M. Hail fell during the storm on the top of the Afferwata mountain; 50 sheep and 10 goats were beaten to death by the hailstones.

31st.—Thunderstorm at Srinagar between 7 P.M. "and 9 P.M. Pressure increased from 24·568″ at 7 P.M. to 24·635″ at 8 P.M.
Duststorm at Lahore at 6-30 P.M.

EARTHQUAKE REPORTS.—Severe earthquake shocks were experienced at Bunder Abbas in the Persian Gulf on the 9th, 13th, 18th, and 20th. The following is a complete account of these seismic shocks:—

"The first shock was felt on July the 9th between seven and eight in the morning. The shock was preceded by a strange rumbling sound like thunder proceeding from the direction of the Island of Kishm. The weather at the time was close and almost stifling, and the sea was as still as a pond. The rumbling noise was loud and clear and resembled the roar of big guns away out at sea. Every one in Bunder Abbas was astonished and alarmed. People rushed wildly from their houses and looked with consternation in the direction of Kishm, whence the queer rumbling noise appeared to come with increasing loudness. Suddenly there was a strange tremor or vibration of the earth, and, without a moment's warning, a house in the vicinity of the bazar came down with an awful crash and almost buried alive a Persian woman, who happened to be passing. The shocks were almost continuous and kept the buildings in motion for nearly two minutes. Some big boulders from the Portuguese Fort, in which the Governor resides, were dislodged and in falling brought down the roof of the Customs Office adjoining. Tall buildings, which are the exception and not the rule in Bunder Abbas, suffered most. Several wind towers, of which every house has at least one, collapsed and others are in a very dangerous condition and may fall at any moment. At Socr suburb, about two and a half miles away, the ground opened and water rushed out. Most of the buildings were destroyed and several people lost their lives.

There was no news from Kishm till two days afterwards, when a small fishing boat arrived with a note from the Governor describing the total destruction of most of the houses, but, as the place is vacated during the summer months, there was no loss of life. In Ormuz part of an old fortress collapsed, and slight shocks were also felt in Minan, about forty miles away. The earthquake was also felt on the hills behind the town of Bunder Abbas, and a cloud of dust obscured everything. A second severe shock was felt on Sunday, the 13th instant, at 11 A.M., when two shops in the bazar collapsed and several merchants' offices were damaged. There was another severe shock on Friday, the 18th instant, at about the same hour, and a still more severe one on Sunday, the 20th instant, at 2-30 in the afternoon. This last brought down several houses in the centre of the town and four shops in the bazar. Shocks continue to be felt every day. There is not a building in Bunder Abbas which has not suffered, and the breaches become wider every day and portions collapse every now and then. The bazars and shops are closed, and it is difficult to obtain the necessaries of life. The majority of the inhabitants at this time of the year are in the hills, and only those wnose business will not allow them to leave are in the town. Houses are abandoned, and everybody is encamped in huts on the Maidan behind the town at Naiband or along the coast."—(Vide *Englishman* newspaper for the 31st July.)

Brief Summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—A strong advance of monsoon winds was in progress over the southern half of the Arabian Sea during the first four days of the month. A feeble depression formed in front of the advancing current off the North Konkan Coast on the 5th which thereafter drifted slowly northwards and passed into Kathiawar on the afternoon of

the 7th. Winds were feebly cyclonic in the angle between the Kathiawar and Konkan Coasts from the 5th to the 8th, but returned to their normal directions on the 9th.

The winds were fairly normal in direction during the rest of the month throughout the Arabian Sea except in the vicinity of the Bombay Coast, where, from the 29th to the 31st, they blew more directly from the west than usual.

The monsoon current was, so far as can be determined, from the available data, stronger than usual in the Arabian Sea on the 3rd, 4th, 8th and 9th, and again from the 13th to the 16th, of normal strength on the 29th, and more or less below its normal July intensity on the other days of the month. The weakness was most marked from the 19th to the 23rd, when the current averaged only 3·6 in force, or 1·0 below the normal. There were also large fluctuations in its strength from day to day, thus indicating that it was much less steady than is ordinarily the case in the month of July. The monsoon current was strongest on the 15th and 16th, when it averaged 5·4 in force, and feeblest on the 21st, when its average intensity, as deduced from the data of 25 vessels, was only 3·4.

Bay of Bengal:—Winds were very unsteady and on the whole feebler than usual during the first ten days of the month. Abnormal south-easterly winds obtained in the north and east of the Bay from the 5th to the 8th, indicating an abnormal set of the current to the Orissa and West Bengal Coasts. The chief feature of the meteorology of this period was a depression which formed off the North Circars Coast during the 5th, and, drifting north-north-westwards, passed into the east of the Central Provinces. It was a feeble disturbance and did not affect the weather to any considerable extent. The air movement was remarkably feeble from the 8th to the 10th, when it was at least 20 per cent. below its normal strength. Winds increased rapidly in strength during the 10th, and from that date till the 30th were more or less above their normal intensity. They were unusually strong from the 15th to the 18th, when their average intensity varied between 5·3 and 6·0 as compared with 4·0, the normal July value. The air movement was fairly normal in direction during these three weeks, except on two occasions, *viz.*, the 13th to 15th, and the 27th to 29th. During the first of these periods a storm was in course of formation over the head of the Bay and winds were hence cyclonic in direction. On the second occasion the winds were more westerly than usual over the north of the Bay and were hence directed chiefly to Burma.

On the mean of the whole month the current in the Bay was 0·4 stronger than usual.

From the preceding account of the weather in the Indian Seas it will be seen that while the Bay of Bengal current was slightly stronger than usual, the current in the Arabian Sea was somewhat below its normal intensity. The most noteworthey feature of the marine meteorology was the weakness of the Arabian Sea current, more especially in the neighbourhood of the Konkan and Malabar Coasts, during the greater part of the second half of the month.

Equatorial Belt.—So far as can be judged from the very limited information available for the western half of this region, winds were considerably below their normal strength from the 10th to the 19th, and much stronger than usual during the last eight or nine days. The rainfall data of Zanzibar indicate that the total precipitation of the month at that station was 103 per cent. in excess of the normal and that more than four-fifths of the total amount fell from the 20th to the 30th, when the trades current was more easterly than usual. The Seychelles, on the other hand, obtained only a third of its normal quantity.

Temperature of the Air.

The temperature conditions of the month were directly related to the rainfall distribution, temperature being in defect in the region of increased rainfall and *vice versâ*.

The mean maximum or day temperature of the month was in defect in the Central and South-East Punjab, the submontane districts of the United Provinces, nearly the the whole of Bengal, Assam, Upper and Central Burma, Ganjam, East Ceylon and the South Konkan Coast, but the variations in these areas were small, in no case exceeding 2° in amount.

Over the remainder of the country the mean day temperature was in excess, more especially in a broad belt stretching north-westwards from Hyderabad and the east of the Central Provinces to Sind. The excess was more than 2° over the whole of that area, and was upwards of 5° in South-West Rajputana and North Gujarat.

The following gives data for stations in these two areas :—

Area.	Station.	Mean maximum temperature.		
		Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
		°	°	°
Rajputana	Deesa	101·3	91·7	+9·6
	Pachpadra	104·4	97·6	+6·8
Gujarat	Ahmedabad	98·3	91·4	+6·9
	Bhuj	95·9	90·0	+5·9
	Rajkot	96·2	90·6	+5·6
Central Provinces	Hoshangabad	92·7	86·7	+6·0

The distribution of the mean night temperature was very similar to that of the day temperature.

The night temperature of the month was below the normal over Central and Upper Burma, Assam, the greater part of Bengal, the United Provinces, the North Punjab, the eastern half of the Central Provinces and Ganjam, and also in West Ceylon. The deficiency in these areas was slight, exceeding 2° nowhere except perhaps locally at Umballa (—2·5°)

The mean night temperature was in excess over the remainder of India and in Lower Burma, the excess being most marked in Sind, West and Central Rajputana, the northern half of Gujarat and Hyderabad where it varied between 2·2° and 3·7° The following gives data for the stations at which the departure from the normal was 3° or more :—

Station.	Mean minimum temperature.		
	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
	°	°	°
Deesa	81·3	77·6	+3·7
Ajmer	80·6	77·3	+3·3
Pachpadra	82·7	79·7	+3·0
Jacobabad	87·4	84·3	+3·1
Hyderabad (Deccan)	74·8	71·7	+3·1

The variations of the mean temperature of the month from the normal were small in amount over by far the greater part of the country. Temperature was generally higher than usual over the whole of the area with the exception of the South Konkan, Ceylon, Ganjam, Central and Upper Burma, Assam, Bengal, the United Provinces and the North Punjab. The deficiency was less than 1·5° at all the reporting stations in these areas except Umballa and Roorkee, where the mean daily temperature of the month was 1·6° below the normal.

The excess was less than 2° except in three areas, *viz.* (1st) the East Deccan ; (2nd) Sind, Gujarat, Khandesh, the greater part of Rajputana, and the western districts of the Central Provinces and of Central India ; and (3rd) the South Tenasserim Coast (represented by Mergui).

Data for these areas are given below :—

Province.	Station.	Mean daily temperature.		
		Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
		°	°	°
First area	Secunderabad	83·1	79·4	+3·7
	Hyderabad	82·7	79·4	+3·3
	Kurnool	86·0	3·1	+2·9
Second area	Deesa	91·3	84·6	+6·7
	Pachpadra	93·6	88·7	+4·9
	Ajmer	87·8	84·3	+3·5
	Bikaner	94·2	91·6	+2·6
	Ahmedabad	89·6	84·8	+4·8
	Rajkot	87·4	83·2	+4·2
	Bhuj	88·1	84·0	+4·1
	Surat	84·8	82·2	+2·6
	Malegaon	82,6	80·3	+2·3
	Hoshangabad	84·9	81·0	+3·9
	Khandwa	83·7	81·4	+2·3
	Neemuch	83·7	80·8	+2·9
	Indore	81·4	78·6	+2·8
	Jacobabad	99·6	96·1	+3·5
	Kurra	88·8	85·6	+3·2
	Hyderabad	92·2	89·9	+2·3
Third area	Mergui	81·4	78·5	+2·9

The variations of the temperature conditions at the hill stations in India and Further Kashmir were in almost all ases similar to those of the neighbouring plains stations, but generally smaller in amount, the usual rule in the rains.

The following gives variation data for nine hill stations and the neighbouring plains stations :—

Hill Station.	Variation of mean daily temperature from normal, July 1902.	Nearest plain station.	Variation of mean daily temperature from normal, July 1902.
	°		°
Srinagar	—1·1	Rawalpindi	—1·1
Murree	—2·4	Ditto	—0·4
Simla	—1·1	Ludhiana	—0·1
Chakrata	—1·4	Roorkee	—1·6
Ranikhet	—0·2	Bareilly	—0 6
Darjeeling	—0·1	Dhubri	—0·1
Mount Abu	+4·0	Deesa	+6·7
Pachmarhi	+3·5	Hoshangabad	+3·9
Wellington	—0·1	Coimbatore	—0·3

Temperature was normal in Afghanistan, slightly lower than usual in Baluchistan, and generally above the normal in Persia and Arabia.

The following gives data for stations in these areas :—

STATION.	MEAN DAILY TEMPERATURE. Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
	°	°	°
Kabul	76·5	77·0	—0·5
Quetta	78·3	78·7	—0·4
Kalat	70·5	73·2	—2·7
Chaman	87·3	88·3	—1·0
Teheran	86·6	85·3	+1·3
Ispahan	82·3	82·3	0
Bushire	88·5	87·1	+1·4
Jask	92·1	90·4	+1·7
Muscat	90·5	89·5	+1·0
Baghdad	95·1	93·1	+2·0
Aden	88·6	87·2	+1·4

The highest maximum temperatures in the region of excessive day temperature were generally registered during the second week of the month. The absolute maximum temperatures recorded at several stations were higher than have been previously observed in the month of July and it was hence the hottest July on record in these areas.

The following gives data in illustration :—

STATION.	Highest maximum temperature recorded in July 1902.	Date on which recorded.	Highest maximum temperature recorded in July previous to 1902.	Year in which recorded.
	°		°	
Deesa	111·1	8th	108·9	1881
Bhuj	104·3	6th	104·1	1881
Veraval	92·6	8th	90·8	1891
Ahmedabad	108·3	6th	106·3	1900
Surat	102·2	7th	99·7	1900
Bombay	93·5	11th	89·5	1897
Hyderabad (Deccan)	98·4	11th	97·4	1897

The preceding data indicate that the maximum temperatures recorded at Deesa, Ahmedabad, Bombay and Surat were from 2° to 4° higher than have been previously registered in the month of July.

The following sums up the chief features of the mean temperature conditions of the month :—

(1) Temperature was on the average of the month in slight defect, both by day and night, in Central and Upper Burma, Assam, Bengal and the greater part of the United Provinces.

(2) Temperature was more or less in excess, both by day and night, over nearly the whole of the Peninsula and Central and North-Western India (excepting the sub-montane districts) and also in Lower Burma. The excess increased in amount westwards from the Central Provinces and Central India, and was greatest in Sind, West and Central Rajputana, Gujarat, Khandesh and the neighbouring districts, where it ranged between 2° and 7°. The day temperature was on the whole more largely in excess than the night temperature.

(3) The temperature variations at the hill stations in India were similar in character to those of the neighbouring plains.

(4) Temperature was normal or in slight defect in Baluchistan and Afghanistan and above the normal to a slight extent in Persia and Arabia.

The following table gives comparative temperature data for 56 meteorological divisions of India :—

PROVINCE.	DIVISION.	ACTUAL TEMPERATURE. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	VARIATION FROM NORMAL OF MONTH OF Maximum.	Mirimum.	Daily range.
		°	°	°	°	°	°	°	°
BURMA	Tenasserim	85·1	74·7	79·9	10·5	19·0	+1·5	+1·1	+0·4
	Lower Burma (Deltaic)	85·0	76·6	80·8	8·4	16·8	+0·2	+0·9	—0·7
	Central do.	87·0	75·4	81·2	11·6	21·0	—0·8	—0·3	—0·5
	Upper do.	89·5	76·1	82·8	13·4	22·0	—0·9	—0·3	—0·6
	Arakan	83·7	77·0	80·4	6·7	15·7	—1·0	—0·5	—0·5
BENGAL AND ASSAM	Eastern Bengal	86·2	77·5	81·9	8·7	18·0	—0·9	—0·5	—0·4
	Assam (Surma)	90·4	77·6	84·0	12·8	23·8	+0·2?	+0·4.	—0·2?
	Do. (Brahmaputra)	88·4	77·1	82·8	11·3	18·8	—1·4	—0·4	—1·0
	Deltaic Bengal	88·3	78·7	83·5	9·6	17·6	—0·2	—0·1	—0·1
	Central do.	89·2	78·4	83·8	10·8	19·7	—0·4	—0·4	0
	North do.	88·4	77·9	83·2	10·5	20·5	—0·6	—0·3	—0·3
	Bengal Hills	66·0	57·5	61·8	8·5	17·1	0	—0·2	+0·2
	Orissa	88·3	78·4	83·4	10·0	21·6	+0·4	+0·1	+0·3
	Chota Nagpur	88·5	75·9	82·2	12·7	30·3	+0·8	+0·1	+0·7
	Bihar (South)	91·9	78·7	85·3	13·2	31·8	+1·8	—0·4	+2·2
	Do. (North)	90·5	78·9	84·7	11·6	22·1	—0·1	0	—0·1

Province.	Division.	Actual temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of month of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
United Provinces of Agra and Oudh.	United Provinces (East)	92·3	78·6	85·4	13·7	39·3	+0·9	−1·0	+1·9
	Oudh (South)	92·4	78·3	85·4	14·1	39·5	+0·2	−1·2	+1·4
	Do. (North)	92·6	78·3*	85·2*	14·3*	41·7	+1·3	−0·5*	+1·8
	United Provinces (Central)	92·8	79·1	86·0	13·7	35·5	+0·7	−0·2	+0·9
	Do. do. (West)	92·6	79·6	86·1	13·0	30·8	−0·5	−0·3	−0·2
	Do. do. (East Sub-montane).	90·7	78·2	84·5	12·5	31·1	−0·4	−1·2	+0·8
	Do. do. (West Sub-montane)	88·9	75·9	82·4	13·0	33·8	−0·8	−1·1	+0·3
	Do. do. (Hills)	70·1	60·0	65·1	10·1	27·2	−1·1	−0·5	−0·6
Punjab and North-West Frontier Province.	Punjab (South-East)	92·0	80·2	86·1	11·8	32·2	−2·0	−0·5	−1·5
	Do. (South)	97·5	80·1	88·8	17·4	34·9	+1·1	+0·2	+0·9
	Do. (Central)	101·4	81·5	91·5	19·9	43·0	+0·8	+2·1	−1·3
	Do. (Submontane)	96·3	78·7	87·4	17·6	37·8	+0·3	−0·8	+1·1
	Do. (Hills)	81·9	59·4	70·7	22·4	40·5	−1·2	−2·1	+0·9
	Do. (North)	100·0	77·8	88·9	22·3	41·3	−0·1	−0·3	+0·2
	Do. (West)	103·9	83·9	93·9	19·9	39·1	+0·2	+0·9	−0·7
Bombay and Malabar Coast Districts (Madras).	Malabar	82·8	74·4	78·6	8·5	14·8	0	+0·6	−0·6
	Madras (South Central)	90·4	72·5	81·5	17·9	26·2	−0·2	+0·7	−0·9
	Coorg	70·8	62·5	66·7	8·3	16·9	+1·9	+0·3	+1·6
	Mysore	81·4	67·2	74·4	14·2	24·6	+0·6	+0·7	−0·1
	Konkan	83·5	76·7	80·2	6·8	15·0	0	+0·6	−0·6
	Bombay Deccan	85·0	71·0	78·0	14·0	27·4	+1·3	+0·5	+0·8
	Hyderabad (North)	89·1	72·3	80·7	16·7	28·1	...	...	...
	Khandesh	88·6	73·2	80·9	15·4	26·0	+3·1	+1·4	+1·7
Central Provinces and Berar.	Berar	90·4	75·0	82·7	15·4	29·4	+2·3	+1·1	+1·2
	Central Provinces (West)	91·5	70·5	84·0	15·0	28·4	+4·1	+1·3	+2·8
	Do. (Central)	88·6	74·3	81·5	14·3	32·9	+2·7	+0·1	+2·6
	Do. (East)	88·6	75·1	81·9	13·5	32·5	+1·6	−1·0	+2·6
Bombay (North)	Gujarat	94·5	79·9	87·2	14·6	30·7	+5·2	+2·2	+3·0
	Kathiawar and Cutch	92·9	80·1	86·5	12·8	23·7	+4·4	+2·3	+2·1
	Sind	102·7	84·3	93·5	18·5	33·0	+4·1	+2·7	+1·4
	Baluchistan Hills	96·2	61·4	78·8	34·8	46·0	+0·4	−3·1	+3·5
Rajputana and Central India.	Central India (East)	89·7	76·5	83·2	13·3	34·3	+3·3	+1·4	+1·9
	Rajputana (East), Central India (West)	96·0	79·3	87·8	16·5	33·3	+4·7	+2·1	+2·6
	Do. (West)	103·6	83·3	93·4	20·3	33·3	+5·1	+2·4	+2·7
Madras	East Coast (North)	88·6	78·2	83·4	10·4	23·1	−0·6	−1·1	+0·5
	Hyderabad (South)	92·0	74·4	83·2	17·6	28·9	+3·4	+1·5	+1·9
	Madras (Central)	94·9	77·0	86·0	17·9	25·6	+2·3	+1·2	+1·1
	East Coast (Central)	96·4	80·0	88·2	16·4	29·2	+1·4	+1·1	+0·3
	Do. (South)	97·0	79·2	88·1	17·8	26·4	+0·7	+1·2	−0·5
	Madras (South)	93·6	76·7	84·8	16·9	24·8	+0·3	−0·3	+0·6

* Mean of 18 days.

The following is a brief sketch of the more important daily changes in the temperature conditions in India during the month :—

At the beginning of the month a break in the rains obtained generally in the interior of India and temperature was hence more or less largely above the normal in that area. The excess ranged between 6° and 14° in Chota Nagpur, the United Provinces, the Punjab, Central India and the Central Provinces, and was exhibited much more largely in the day than in the night temperature. Temperature was, on the other hand, in moderate to large defect in Assam, Bengal and the coast districts of Orissa, where weather was showery.

The following variation data for the 24 hours preceding 8 A.M. of the 1st indicate the conditions obtaining at the commencement of the month :—

Province or Division.	Variation from normal of Mean maximum temperature, 1st July.	Mean minimum temperature, 1st July.	Mean daily temperature, 1st July.
	°	°	°
Burma	+1·1	+1·1	+1·1
Assam	−3·7	−2·1	−2·9
Bengal	−6·6	−3·4	−5·0
Orissa	+5·1	−6·0	−0·5
Bihar	+3·4	−0·7	+1·4
Chota Nagpur	+14·3	+0·9	+7·6

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 1st July.	Mean minimum temperature, 1st July.	Mean daily temperature, 1st July.
	°	°	°
United Provinces of Agra and Oudh	+14·8	+2·4	+8·6
Punjab	+7·7	+5·8	+6·8
Sind	—0·8	—0·3	—0·6
Rajputana	+6·2	+4·0	+5·1
Gujarat	+5·3	+2·0	+3·7
Central India	+13·8	+2·3	+8·1
Central Provinces	+13·4	+3·2	+8·3
Berar	+2·7	—0·2	+1·3
West Coast	+3·0	+3·2	+3·1
Bombay Deccan	+6·8	+2·3	+4·6
Mysore	+7·6	+3·5	+5·6
Madras Coast	+1·7	+1·1	+1·4
Madras Deccan	+1·8	+1·1	+1·5
South India	+2·9	+2·4	+2·7

The monsoon currents strengthened during the next three or four days and rainfall recommenced in the interior, but was sporadic in character and light to moderate in amount. The temperature changes were hence somewhat irregular during the period, though their general effect was to reduce the prevailing excess very considerably.

The following variation data for the 1st and the 6th illustrate the reduction effected by the extension of moist winds and rainfall over the interior :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		Change.
	Mean temperature, 1st July.	Mean temperature, 6th July.	
	°	°	°
Burma	+1·1	+1·7	+0·6
Assam	—2·9	—2·1	+0·8
Bengal	—5·0	—1·4	+3·6
Orissa	—0·5	+1·2	+1·7
Bihar	+1·4	—3·1	—4·5
Chota Nagpur	+7·6	—3·6	—11·2
United Provinces of Agra and Oudh	+8·6	—1·6	—10·2
Punjab	+6·8	—4·9	—11·7
Sind	—0·6	+2·8	+3·4
Rajputana	+5·1	+4·0	—1·1

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		Change.
	Mean temperature. 1st July.	Mean temperature, 6th July.	
	°	°	
Gujarat	+3·7	+5·1	+1·4
Central India	+8·1	+4·8	—3·3
Central Provinces	+8·3	+2·5	—5·8
Berar	+1·3	+1·3	0
West Coast	+3·1	—1·3	—4·4
Bombay Deccan	+4·6	+3·3	—1·3
Mysore	+5·6	+0·5	—5·1
Madras Coast	+1·4	+0·8	—0·6
Madras Deccan	+1·5	+2·2	+0·7
South India	+2·7	—0·7	—3·4

Moderate to heavy rain occurred in Gujarat and Central India during the next three or four days and produced a rapid fall of temperature. Over the remainder of India temperature increased slowly during the period and was on the 10th approximately normal, except in the areas for which data are given below :—

AREA.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 10th July	Mean minimum temperature, 10th July.	Mean daily temperature, 10th July.
	°	°	°
Sind	+5·4	+4·3	+4·9
Rajputana	+4·1	+3·0	+3·6
Central Provinces	+4·4	+1·8	+3·1
Berar	+4·0	+1·7	+2·9
Orissa	+2·4	+3·0	+2·7
Madras Deccan	+4·0	+0·6	+2·3
Punjab	—4·2	—2·2	—3·2

The rainfall was restricted almost entirely to the West Coast districts, Burma, Assam and Bengal during the next two days. Temperature hence increased generally and on the 12th was considerably higher than usual except in the region of rainfall. The excess averaged 9° in Berar, 8° in Rajputana, $7\frac{1}{2}$° in Sind and 7° in the Central Provinces and Central India, and was greatest in the day temperature.

The following table giving variation data for the twenty

provinces or divisions shows the conditions obtaining on this day :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 12th July.	Mean minimum temperature, 12th July.	Mean daily temperature, 12th July.
	°	°	°
Burma	—0·8	+0·6	—0·1
Assam	—6·0	—1·9	—4·0
Bengal	—2·2	—1·7	—2·0
Orissa	+4·9	—0·8	+2·1
Bihar	+6·6	0	+3·3
Chota Nagpur	+4·2	+1·1	+2·7
United Provinces of Agra and Oudh	+6·3	+1·8	+4·1
Punjab	+3·7	+4·4	+4·1
Sind	+9·4	+5·5	+7·5
Rajputana	+10·0	+6·6	+8·3
Gujarat	+3·1	+1·8	+2·5
Central India	+10·1	+4·4	+7·3
Central Provinces	+11·4	+2·2	+6·8
Berar	+12·4	+6·1	+9·3
West Coast	—2·5	—1·2	—1·9
Bombay Deccan	+6·0	+1·6	+3·8
Mysore	+4·4	+1·1	+2·8
Madras Coast	+3·0	+1·3	+2·2
Madras Deccan	+5·9	+2·2	+4·1
South India	+1·6	+0·2	+0·9

A moderate burst of rain occurred in the Peninsula from the 13th to the 16th which reduced temperature in that area.

The following variation data for the 16th show the effect of this burst of rain on the temperature conditions of the Peninsula :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 16th July.	Mean minimum temperature, 16th July.	Mean daily temperature, 16th July.
	°	°	°
Gujarat	+3·0	—0·1	+1·5
Central India	+0·4	+1·6	+1·0
Central Provinces	+0·3	+0·2	+0·3
Berar	—3·9	+0·4	—1·8
West Coast	—0·3	+0·7	+0·2
Bombay Deccan	—1·3	—0·4	—0·9
Mysore	—6·6	+0·5	—3·1
Madras Coast	—6·0	—1·3	—3·7
Madras Deccan	+0·9	+0·6	+0·8
South India	—5·7	—1·6	—3·7

The second storm of the month was in course of formation at this time at the head of the Bay and, as usual under these circumstances, little or no rain was falling in North-Eastern India.

The following statement giving data for the period indicates the rapid rise of temperature accompanying the break in this area : —

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		Change.
	Mean daily temperature, 12th July.	Mean daily temperature, 16th July.	
	°	°	°
Assam	—4·0	+2·5	+6·5
Bengal	—2·0	+1·3	+3·3
Bihar	+3·3	+4·2	+0·9

Remarkably high day temperatures were registered in Western India and Hyderabad during the period the 6th to the 12th.

The following are the most noteworthy :—

STATION.	Highest maximum temperature recorded in July 1902.	Date on which recorded.	Highest maximum temperature recorded in July previous to 1902.	Year in which recorded.
	°		°	
Deesa	111·1	8th	108·9	1881
Bhuj	104·3	6th	104·1	1881
Veraval	92·6	8th	90·8	1891
Ahmedabad	108·3	6th	106·3	1900
Surat	102·2	7th	99·7	1900
Bombay	93·5	11th	89·5	1897
Hyderabad (Deccan)	98·4	11th	97·4	1897

A strong rush of humid winds across the Sind and Kathiawar Coasts gave moderate rain over the greater part of North-Western and Central India from the 13th to the 16th. This caused a rapid decrease of temperature in these areas but the fall was not sufficiently large to reduce completely the excess obtaining on the 12th.

The following data for the 12th and 16th indicate the change in this area during this period :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		Change.
	Mean daily temperature, 12th July.	Mean daily temperature, 16th July.	
	°	°	°
United Provinces of Agra and Oudh	+4·1	+3·9	−0·2
Punjab	+4·1	+2·9	−1·2
Sind	+7·5	+3·8	−3·7
Rajputana	+8·3	+4·8	−3·5
Gujarat	+2·5	+1·5	−1·0
Central India	+7·3	+1·0	−6·3
Central Provinces	+6·8	+0·3	−6·5
Berar	+9·3	−1·8	−11·1

The storm crossed the coast on the evening of the 15th and, marching along a north-westerly direction through Chota Nagpur and the United Provinces, broke up in the Kumaon hills on the 19th. The rainfall accompanying its passage caused a considerable reduction of temperature in Bengal, the United and Central Provinces, Central India, Rajputana and the South-East Punjab, so that on the 19th temperature was from 2° to 10° in defect in these areas. Temperature had, on the other hand, increased in the south and centre of the Peninsula and was now practically normal except locally in the Madras Deccan where it was 2° to 3° in excess.

The following variation data for the 18th indicate the temperature conditions of this period :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 18th July.	Mean minimum temperature, 18th July.	Mean daily temperature, 18th July.
	°	°	°
Burma	−2·8	−0·1	−1·5
Assam	−1·1	−1·3	−1·2
Bengal	−3·0	−1·2	−2·1
Orissa	−0·9	−0·3	−0·6
Bihar	−0·8	−1·1	−1·0
Chota Nagpur	−2·1	−0·6	−1·4
United Provinces of Agra and Oudh	−2·4	−1·6	−2·0
Punjab	+1·3	+1·9	+1·6
Sind	+2·6	+2·9	+2·8
Rajputana	+3·8	−1·4	+1·2
Gujarat	+1·0	+1·9	+1·5
Central India	−6·2	−3·4	−4·8
Central Provinces	−5·8	−2·4	−4·1
Berar	−10·1	−2·1	−6·1
West Coast	+0·7	+0·6	+0·7
Bombay Deccan	−4·7	+0·3	−2·2
Mysore	−2·7	+0·1	−1·3
Madras Coast	−0·6	+0·9	+0·2
Madras Deccan	+2·1	+1·9	+2·0
South India	−1·8	−1·5	−1·7

A partial break in the rains obtained in the interior of the Peninsula during the remainder of the month. Temperature hence increased and was more or less above the normal in that area throughout the period. The excess was on the whole greatest in the Deccan. The following data for the 20th, 24th, 28th and 31st show clearly the character of the temperature conditions prevailing during the period :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	20th July.	24th July.	28th July.	31st July.
	°	°	°	°
Central Provinces	+0·4	+0·5	+1·1	+1·3
Berar	+0·7	+1·3	+1·3	+3·6
West Coast	+1·0	+1·5	+2·1	+0·9
Bombay Deccan	+0·8	+2·0	+1·4	+3·1
Mysore	+0·2	+2·3	+3·1	+1·2
Madras Coast	+0·7	+0·3	+1·3	+1·5
Madras Deccan	+3·0	+2·8	+1·8	+3·5
South India	+1·3	+1·7	+1·0	0

Temperature was more or less in excess throughout the same period in Sind, Rajputana and Gujarat but was normal or in slight defect in North-East and Central India and Burma, which received steady moderate to heavy rain.

The following gives variation data for these areas for each alternate day from the 16th to the 31st :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF								
	16th July.	18th July.	20th July.	22nd July.	24th July.	26th July.	28th July.	30th July.	31st July.
	°	°	°	°	°	°	°	°	°
Burma . .	−1·1	−1·5	−1·7	−0·5	+0·6	−0·6	−0·7	−0·5	+0·6
Assam . .	+2·5	−1·2	+0·2	+0·1	−1·7	−0·7	+1·3	+1·2	−1·2
Bengal . .	+1·3	−2·1	−0·6	−1·5	+0·5	+0·5	+0·1	−1·4	−0·7
Orissa . .	−2·1	−0·6	+0·6	−1·1	+1·8	+0·6	−1·7	+0·8	+1·6
Bihar . .	+4·2	−1·0	−0·2	+0·4	0	−3·5	+0·1	−0·3	−0·8
Chota Nagpur .	+0·9	−1·4	+0·2	−0·4	+1·5	−0·4	−2·9	−1·7	+0·7
United Provinces of Agra and Oudh.	+3·9	−2·0	−3·3	−0·2	−0·7	−1·2	−1·9	−1·7	−1·7
Sind . .	+3·8	+2·8	+2·0	+3·2	+3·0	+3·7	+3·0	+4·2	+3·8
Rajputana .	+4·8	+1·2	−0·7	+3·3	+2·0	+3·9	+3·8	+3·2	+0·9
Gujarat . .	+1·5	+1·5	+2·7	+3·7	+4·1	+3·5	+4·0	+3·4	+3·7

The temperature conditions were remarkably unsteady in the Punjab, as is shown by the following data :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF											
	20th July.	21st July.	22nd July.	23rd July.	24th July.	25th July.	26th July.	27th July.	28th July.	29th July.	30th July.	31st July.
	°	°	°	°	°	°	°	°	°	°	°	°
Punjab .	−1·2	+3·3	+5·0	+2·0	+1·1	+3·1	+2·7	−1·6	−5·4	−1·2	+1·3	+3·1

The deficiency from the 27th to the 29th was, it may be noted, due to the occurrence of rain in that area.

Winds.

The Bay current was on the mean of the month stronger than usual over the centre and the head of the Bay, as is shown by the following data :—

STATION.	MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
Port Blair	325	268	+ 57
Diamond Island	357	240	+117
Saugor Island	491	357	+134
Chittagong	228	165	+ 63

Winds were normal in strength in Arakan, the interior of Bengal, Orissa and Chota Nagpur, and lighter than usual in Bihar. They were, on the other hand, moderately above their normal strength in the eastern districts of the United Provinces.

The following gives comparative data of the strength of the air movement in these areas :—

STATION.	MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
Akyab	79	98	−19
Calcutta	132	122	+10
False Point	275	277	−2
Hazaribagh	205	210	−5
Darbhanga	88	121	−33
Allahabad	186	151	+35

Winds were approximately normal in direction at Port Blair, Diamond Island and Akyab, but were more southerly than usual at Rangoon.

The following gives data for these stations :—

STATION.	MEAN WIND DIRECTION.	
	Actual, July 1902.	Normal, July.
Port Blair	° S 52 W	° S 47 W
Diamond Island	S 44 W	S 42 W
Akyab	S 6 E	S 1 E
Rangoon	S 17 W	S 34 W

As might be expected from the abnormal character of the distribution of pressure, winds were more southerly than usual in Bengal, Orissa and Bihar.

The following gives data in illustration :—

STATION.	MEAN WIND DIRECTION.		
	Actual, July 1902.	Normal, July.	Southerly Deflection.
Chittagong	° S 5 E	° S 30 E	+25
Calcutta	S 2 W	S 8 E	0
Saugor Island	S 16 W	S 21 W	+ 5
False Point	S 49 W	S 53 W	+ 4
Darbhanga	S 67 E	S 77 E	+10

On the mean of all stations there was hence a southerly deflection of about 10°.

Winds differed very considerably from the normal direction in Chota Nagpur and the east of the United Provinces, being abnormally westerly in the former and northerly in the latter area.

The following data for Hazaribagh and Allahabad illustrate these remarks :—

STATION.	MEAN WIND DIRECTION.	
	Actual, July 1902.	Normal, July.
Hazaribagh	S 60 W	S 9 E
Allahabad	N 29 E	N 71 E

The monsoon trough of low pressure lay much further north than usual, more especially in its eastern half. The position of the axis was defined approximately by the stations for which data are given below :—

	STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.	
		Actual percentage, July 1902.	Normal percentage, July	Variation of actual from normal, July, 1902.	Actual, July 1902.	Normal, July.
Stations to south of axis	Hazaribagh .	34	14	+20	S 60 W	S 9 E
	Jaipur . .	39	28	+11	N 83 W	N 72 W
Stations to north of axis.	Darbhanga .	60	56	+4	S 67 E	S 77 E
	Meerut . .	14	21	—7	S 58 E	S 69 E
	Roorkee . .	32	33	—1	S 42 E	S 37 E
	Ludhiana .	48	23	+25	S 53 E	S 40 E
	Lahore . .	50	30	+20	S 82 E	S 77 E
Station along axis.	Allahabad .	1	7	—6	N 29 E	N 71 E

It may be noted that the large modifications of the air movement in Northern India revealed by the preceding data, *viz.*, the unusual westing in Chota-Nagpur, the diminished easting in the east of the United Provinces, and the increased easting in the East Punjab and westing in East Rajputana were directly related to the northerly displacement of the trough of low pressure.

Winds were generally much weaker than usual in the north-western districts of the United Provinces, East Rajputana, and the Upper and Mid-Indus Valley, but were unusually strong in the East Punjab.

The following gives data for stations in these areas :—

STATION.	MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual July 1902.	Normal, July.	Variation of actual from normal, July 1902.
Roorkee	59	70	—11
Meerut	32	57	—25
Jaipur	107	133	—26
Peshawar	73	107	—34
Jacobabad	110	133	—23
Ludhiana	83	52	+31
Lahore	104	80	+24

The following gives comparative data of the strength and steadiness of the winds over the region dominated chiefly by the Bay current :—

AREA.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, July 1902.	Normal percentage, July.	Variation of actual from normal, July 1902.	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
Bay Islands . .	72	87	—15	325	268	+57
Burma . .	78	74	+4	165	156	+9
Bengal . .	62	63	—1	284	215	+69
Bihar . .	60	56	+4	88	121	—33
Chota Nagpur .	34	14	+20	205	210	—5
Orissa . . .	79	63	+16	275	277	—2
United Provinces of Agra and Oudh.	21	19	+2	79	76	+3
Punjab . .	50	33	+17	87	80	+7

The Bombay current, as shown by the average strength of the winds, was weaker than usual over the greater part of the area usually dependent upon it for its supply of rainfall.

The following data for typical stations illustrate this feature :—

	Station.	Mean wind velocity in miles per diem.		
		Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
Coast stations.	Kurrachee	426	415	+11
	Bombay	368	450	—82
	Karwar	172	123	+49
Inland stations.	Deesa	438	351	+87
	Belgaum	662	647	+15
	Khandwa	244	217	+27
	Nagpur	240	243	— 3
	Akola	157	210	—53
	Bellary	280	282	—2
	Hyderabad	217	249	—32
	Mysore	335	368	—33
	Salem	54	108	—54

The preceding data show that the winds on the mean of the month were stronger than usual on the Sind and South Konkan Coasts and in the Bombay Deccan, South-West Rajputana and the west of the Central Provinces, and below their normal intensity in the North Konkan, Berar, Hyderabad and South India.

The increased air movement in South-West Rajputana and the Central Provinces was as marked at Mount Abu and Pachmarhi as at the neighbouring plains stations.

This is shown below:—

Station.	Mean wind velocity in miles per diem.		
	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
Mount Abu	333	278	+ 55
Pachmarhi	306	252	+ 54

Winds were generally somewhat more southerly than usual in the West Coast districts, South-West Rajputana and the interior of the Peninsula, an effect of the considerable deficiency of pressure over the Bombay Presidency and the neighbouring sea area relatively to the surrounding districts.

The following gives data for seven representative stations :—

Station.	Mean wind direction.		
	Actual, July 1902.	Normal, July.	Southerly Deflection.
	°	°	
Kurrachee	S 65 W	S 68 W	+ 3
Bombay	S 69 W	S 74 W	+ 5
Deesa	S 33 W	S 42 W	+ 9
Sholapur	S 56 W	S 76 W	+20
Buldana	S 73 W	N 79 W	+28
Bangalore	S 62 W	S 73 W	+11
Bellary	S 73 W	S 87 W	+14

The following gives comparative data of the strength and steadiness of the winds in the region under the sole influence of the Bombay current :—

Area.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, July 1902.	Normal percentage, July.	Variation of actual from normal, July 1902.	Actual, July 1902.	Normal July.	Variation of actual from normal July 1902.
Rajputana	51	51	0	273	242	+31
Central Provinces	63	76	—13	242	230	+12
Berar	61	74	—13	187	215	—28
Bombay Deccan	91	85	+6	606	492	+14
West Coast	82	80	+2	270	287	—17
Madras Deccan	91	89	+2	249	266	—17
Mysore	90	90	0	254	250	+4
Madras Coast	71	67	+4	186	191	—5
South India	47	78	—31	54	108	—54

The preceding discussion has established that the Arabian Sea current was, as indicated by the intensity of the winds in its usual area of extension on the mean of the month, slightly weaker than usual, whilst that in the Bay was above its normal strength. These inferences drawn from the data of the land stations are fully borne out by the following results based on the wind observations recorded on board vessels in these sea areas during the month :—

Area.	Mean daily Force of wind (Beaufort's notation).		
	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
Bay of Bengal	4·4	4·0	+0·4
Arabian Sea	4·3	4·6	—0·3

It is interesting to note in connection with the meteorology of the month in India, that the air movement was practically normal both in direction and intensity in the Equatorial Belt, as represented by the Seychelles and Zanzibar.

The following summarizes the chief features of the air movement of the month over the Indian area :—

(1) The current in the Bay was on the whole stronger than usual.

(2) Winds were stronger than usual in the Bay Islands, Burma, Bengal and the United Provinces, but below their normal intensity in Bihar, Chota Nagpur and Orissa.

(3) The trough of low pressure lay further north than usual in its eastern half and hence westerly winds of the Bombay current extended much farther east than usual into Chota Nagpur.

(4) The Arabian Sea current was steady and strong during the first sixteen or seventeen days of the month, but was weak and unsteady during the remainder of the month. The weakness was most pronounced during the period from the 19th to the 23rd, when the current was at least 20 per cent. below its normal intensity.

(5) Winds were stronger than usual on the Sind and Kathiawar Coasts, but were slightly below their normal strength on the Konkan Coast and over the interior of the Peninsula, with the exception of the Bombay Deccan, Mysore and the Central Provinces.

(6) Winds were slightly more southerly than usual over nearly the whole area usually dominated by the Bombay current, chiefly in consequence of the considerable deficiency of pressure in the north-west of the Peninsula and the north-east of the Arabian Sea.

(7) Winds were much stronger than usual at the hill stations of Mount Abu and Pachmarhi, and of about normal intensity at most of the Himalayan stations.

Humidity and Cloud.

One of the more important features of the meteorology of the month was the dryness of the air over nearly the whole of North-Western and Central India and the Deccan. As the amount of aqueous vapour present in the air was slightly greater than usual over the greater part of this area the decreased humidity was hence chiefly a result of excessive temperature.

The air was slightly damper than usual in two areas. The first included East Bengal, Bihar and the submontane districts of the United Provinces for which data are given below :—

Station.	Absolute humidity			Relative humidity.		
	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
	"	"	"	%	%	
Meerut	·900	·887	+·013	80	74	+6
Roorkee	·863	·872	—·009	79	76	+3
Chittagong	·912	·914	—·002	89	87	+2
Darbhanga	·985	·968	+·017	84	83	+1

The second area included the greater part of Mysore, East and South Madras, and the part of the Bombay Deccan represented by the station of Belgaum. The following gives comparative data for stations in this area :—

Station.	Absolute humidity.			Relative humidity.		
	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
	"	"	"	%	%	
Chitaldroog	·669	·623	+·046	78	76	+2
Hassan	·628	·589	+·039	83	81	+2
Mysore	·640	·608	+·032	77	75	+2
Madras	·836	·793	+·043	68	67	+1
Salem	·762	·746	+·016	72	71	+1
Bellary	·690	·658	+·032	64	63	+1
Belgaum	·690	·669	+·021	92	90	+2

The air was drier than usual over the whole of the region lying between the two areas of increased humidity. The variations were most marked (5 or upwards) at the stations, for which comparative data are given below :—

Station.	Absolute humidity.			Relative humidity.		
	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
	"	"	"	%	%	
Deesa	·762	·828	—·066	56	74	—18
Jaipur	·834	·838	—·004	68	74	—6
Khandwa	·795	·781	+·014	72	77	—5
Buldana	·707	·709	—·002	74	79	—5
Sholapur	·659	·664	—·005	63	68	—5
Bangalore	·596	·609	—·013	72	77	—5
Hazaribagh	·782	·811	—·029	80	85	—5

The region of greatest dryness of the air hence coincided roughly with that of greatest excess of temperature.

The following gives comparative data for the various divisions of Tropical and Extra-Tropical India, Burma and the Bay Islands :—

AREA.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
	"	"	"	%	%	
Bay Islands	·916	·898	+·018	82	85	—3
Burma	·892	·881	+·011	87	89	—2
Bengal	·952	·958	—·006	86	86	0
Bihar	·985	·968	+·017	84	83	+1
Chota Nagpur	·782	·811	—·029	80	85	—5
Orissa	·949	·938	+·011	85	85	0
United Provinces of Agra and Oudh	·864	·879	—·015	80	78	+2
Punjab	·788	·816	—·028	59	61	—2
Lower Sind	·996	·929	+·067	75	78	—3
Rajputana	·798	·833	—·035	62	74	—12
Central Provinces	·805	·797	+·008	75	79	—4
Berar	·753	·738	+·015	74	77	—3
Bombay Deccan	·675	·667	+·008	78	80	—2
Konkan Coast	·881	·869	+·012	85	87	—2
Madras Deccan	·690	·658	+·032	64	63	+1
Mysore	·633	·607	+·026	78	78	0
Madras Coast	·836	·793	+·043	68	67	+1
South India	·762	·746	+·016	72	71	+1

The air was on the whole damper than usual in the Kashmir, Kumaon and Nepal Himalayas, and drier in Baluchistan, the East Punjab Hills, the Sikkim Himalayas, and at Mount Abu in the Aravalis and at Pachmarhi and Chikalda in the Satpuras.

The following gives data for these stations :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.	Actual, July. 1902.	Normal, July.	Variation of actual from normal, July 1902.
	"	"	"	%		
Srinagar	·726	·658	+·068	86	78	+8
Leh	·256	·256	0	50	45	+5
Kailang	·342	·358	—·016	69	66	+3
Ranikhet	·576	·581	—·005	87	86	+1
Katmandu	·685	·688	—·003	82	80	+2
Quetta	·325	·439	—·114	36	47	—11
Simla	·498	·533	—·035	86	88	—2
Darjeeling	·508	·519	—·011	93	95	—2
Mount Abu	·630	·636	—·006	78	89	—11
Chikalda	·673	·655	+·018	87	92	—5
Pachmarhi	·691	·671	+·020	86	88	—2

The air was more humid than usual at Perim (+13) and the Seychelles (+5), and of normal humidity at Zanzibar.

The chief features of the hygrometric conditions of the month were :—

(1) The humidity conditions were normal in Bengal, Orissa and Mysore.

(2) The air was damper than usual in Bihar and the United Provinces. The excess was most pronounced at Meerut where the mean relative humidity of the month was 6 above the normal.

(3) The air was also damper in South India, the Madras Coast and Madras Deccan. The excess in these areas was, however, small.

(4) The air was drier on the mean of the month over the region intervening between the two areas of increased humidity including Chota Nagpur, the Punjab, Sind, Rajputana, the Central Provinces, Berar, the Bombay Deccan and Konkan Coast, and also in Burma and the Bay Islands. The variations were moderately large over the greater part of the area and were most marked in Rajputana where the mean humidity of the month was from 6 to 18 below the normal.

(5) The air was damper than usual at most of the Himalayan hill stations, more especially at Srinagar (+8) and Leh (+5). It was, on the other hand, drier than usual in Baluchistan and at the hill stations in Central India, the dryness being greatest at Quetta and Mount Abu (each —11).

The variations of the cloud amount corresponded closely with those of the humidity over a large part of the country.

The mean cloud amount of the month was generally below the normal to the west and north of a line running through Roorkee, Jhansi, Jubbulpore, Hyderabad and Poona. The variations were less than 1·0 except at Kurrachee (—3·0), Deesa (—1·6), Ludhiana (—1·5) and Lahore (—1·4).

The following gives data for this area of decreased cloud in July 1902 :—

AREA.	MEAN CLOUD AMOUNT. Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
Punjab	3·3	4·4	—1·1
Sind	2·7	4·7	—2·0
Rajputana	6·8	7·8	—1·0
Central Provinces	8·1	8·4	—0·3
Berar	8·2	8·4	—0·2

There was also less cloud than usual locally at Bellary (—1·5) and Madras (—0·4), representative of Central and East Madras.

There was more cloud than usual over the remainder of the Indian area.

The following gives comparative data for this large area of increased cloud :—

AREA.	MEAN CLOUD AMOUNT. Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
Burma	8·9	8·7	+0·2
Bengal	8·9	8·1	+0·8
Bihar	6·4	6.3	+0·1
Chota Nagpur	10·0	9·3	+0·7
Orissa	8·6	8·2	+0·4
United Provinces of Agra and Oudh	7·6	7·1	+0·5
Bombay Deccan	9·0	8·8	+0·2
Konkan Coast	8·9	8·4	+0·5
Mysore	9·0	8·5	+0·5
South India	7·7	6·4	+1·3

The excess was absolutely greatest at stations for which data are given below :—

STATION.	MEAN CLOUD AMOUNT. Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
Bangalore	8·4	6·8	+1·6
Salem	7·7	6·4	+1·3
Karwar	9·0	7·8	+1·2

Cloud was in slight to moderate excess at the hill stations in the Western and Central Himalayas but was less in amount than usual in Baluchistan, the Sikkim Himalayas, and at Mount Abu, Pachmarhi and Chikalda.

The following gives comparative data for ten representative stations :—

STATION.	MEAN CLOUD AMOUNT. Actual, July 1902.	Normal, July.	Variation of actual from normal, July 1902.
Srinagar	4·3	4·0	+0·3
Kailang	6·8	6·4	+0·4
Simla	9·0	8·8	+0·2
Ranikhet	9·1	8·5	+0·6
Katmandu	7·9	6·8	+1·1
Darjeeling	8·0	8·9	—0·9
Quetta	0·7	1·6	—0·9
Mount Abu	7·2	8·6	—1·4
Chikalda	6·9	9·0	—2·1
Pachmarhi	8·3	8·8	—0·5

Skies were practically clear throughout the month at Quetta and Perim (at the entrance to the Red Sea), as is shown by the following data :—

STATION.	MEAN CLOUD AMOUNT. Actual, July, 1902.	Normal, July.	Variation of actual from normal, July 1902.
Quetta	0·7	1·6	—0·9
Perim	0·4	2·5	—2·1

Skies were, on the other hand, overcast (*i.e.*, the mean cloud amount of the month was 9 or over) at the stations for which data are given below :—

STATION.	MEAN CLOUD AMOUNT. Actual, July, 1902.	Normal July.	Variation of actual from normal, July 1902.
Akyab	9·2	8·7	+0·5
Calcutta	9·2	8·3	+0·9
Hazaribagh	10·0	9·3	+0·7
Belgaum	9·4	9·1	+0·3
Karwar	9·0	7·8	+1·2
Chitaldroog	9·2	9·1	+0·1
Hassan	9·3	9·2	+0·1
Mysore	9·2	8·9	+0·3
Simla	9·0	8·8	+0·2
Ranikhet	9·1	8·5	+0·6
Muktesar	9·1	...	...

The following summarizes the chief abnormal features of the distribution of cloud during the month:—

(1) There was on the mean of the month less cloud than usual in the Punjab, Sind, Rajputana, the Central Provinces, Berar, the North Konkan and Central and East Madras. The defect was most marked at Kurrachee (—3·0), Deesa (—1·6), Bellary and Ludhiana (each —1·5) and Lahore (—1·4).

(2) Cloud was in slight to considerable defect in Baluchistan, the Sikkim Himalayas and at the hill stations in Central India. The defect was greatest at Chikalda (—2·1) and Mount Abu (—1·4).

(3) The mean cloud amount was in general excess over Burma, Bengal, the United Provinces, the Bombay Deccan, Hyderabad, the South Konkan, Mysore and Southern India. The excess was small except in the areas represented by the stations of Bangalore (+1·6), Salem (+1·3) and Karwar (+1·2).

(4) There was more cloud than usual in the Central and Western Himalayas. The variations were, however slight except at Katmandu (+1·1).

Rainfall.

At the beginning of the month weather was showery on the Malabar and Bengal Coasts, and fine with a few local showers of little value in the interior of the country. Strong monsoon winds set in on the South Konkan and Malabar Coasts during the next two days and, advancing rapidly into the interior, were established over the Central Provinces, Central India and the Deccan by the 5th. At the same time the rainfall increased in Bengal and extended quickly up the Gangetic Plain into the Punjab, so that on the 5th fairly general rain was falling over Northern and Central India and the Deccan.

A shallow depression formed between the Konkan and Kathiawar Coasts during the 5th, and drifted northwards during the next sixty hours into Kathiawar, where it remained practically stationary until the 10th, when it filled up and disappeared. It occasioned a much-needed burst of rain in Gujarat and Kathiawar. The Arabian Sea current was rather weak on the 11th and 12th but strengthened very rapidly on the 13th and gave general and moderate to heavy rain in Orissa, the Central Provinces and Central India, from the 13th to the 15th. The current in the Bay also strengthened considerably about the same time, and the interaction between the two currents initiated a storm at the head of the Bay during the 13th and 14th. It advanced west-north-westward across Chota Nagpur into the eastern districts of Central India, and then re-curving to north passed into Rohilkhand and the neighbouring districts where it broke up on the 19th. The storm gave a moderate to heavy burst of rain to the greater part of Northern and Central India from the 17th to the 19th. Fairly general rain continued in North Eastern and Central India on the 20th and 21st. A small depression formed in the east of the United Provinces on the latter day, and advancing very slowly along a curved path broke up at the foot of the Nepal Himalayas on the 24th. Although a feeble disturbance, it gave general and moderately heavy rain to the greater part of Northern and Central India. The breaking-up of this depression was followed by a diversion of the Bombay current to Lower Bengal and the head of the Bay. The interaction of the westerly current with the easterly winds from the Bay initiated a storm on the 27th which advanced through Chota Nagpur and the east of the United Provinces into Bundelkhand and the neighbouring districts. It determined a moderate to heavy burst of rain to the whole of Extra-Tropical India, east of the meridian of 74° E.

The distribution of the rainfall of the month was hence determined almost solely by the following factors:—

(1) The feebleness of the Bombay current, more especially during the third week of the month.

(2) The unusual strength of the Bay current, particularly during the last twenty days of the month.

(3) The tracks of the storms, which were more northerly than usual.

(4) The diversion of the Bombay current from Upper India and the Peninsula to the Indo-Gangetic Plain and the Central India Plateau.

The rainfall of the month was more or less below the normal in the following areas:—

(1) The Assam Plains.

(2) The Punjab (excepting the south-eastern districts) and West Rajputana.

(3) The whole of the Bombay Presidency.

(4) The western and central districts of the Central Provinces.

(5) Madras, with the exception of Malabar and the northern coast districts.

The deficiency was greatest in actual amount in Kathiawar and Cutch (6·37 inches or 60 per cent.), Assam Surma (4·39 inches or 20 per cent.), Hyderabad South (4·19 inches or 72 per cent.), Gujarat (4·18 inches or 25 per cent.), the Punjab Hills (4·08 inches or 26 per cent.) and the Central Provinces, Central (2·66 inches or 16 per cent.) and West (2·59 inches or 20 per cent.)

The rainfall of the month was, on the other hand, more or less in excess in Burma, Bengal, the United Provinces, Central India, the South-East Punjab, East Rajputana, the east of the Central Provinces, Berar, Malabar, Mysore, and the northern coast districts of Madras. The excess was 40 per cent. and upwards in Orissa (63 per cent.), Malabar (60 per cent.), Central India East (54 per cent.), the United Provinces East (53 per cent.), North Oudh (42 per cent.) and Arakan (41 per cent.)

The following table gives the mean actual, mean normal and variation data for the 56 meteorological divisions of the Empire:—

Province.	Division.	Number of rainy days. Average actual, July 1902.	Number of rainy days. Average normal, July.	Rainfall. Average actual, July 1902.	Rainfall. Average normal, July.	Rainfall. Variation of actual from normal, July 1902.
				Inches.	Inches.	Inches.
Burma	Tenasserim	25·6	27·2	43·47	43·43	+0·04
	Lower Burma (Deltaic)	25·3	25·9	27·43	24·11	+3·32
	Central do.	20·6	19·7	17·24	12·68	+4·56
	Upper do.	9·4	9·3	6·84	6·64	+0·20
	Arakan	27·1	26·7	68·17	48·40	+19·77
Bengal and Assam	Eastern Bengal	20·8	19·1	23·82	18·26	+5·56
	Assam (Surma)	20·9	22·7	17·14	21·53	−4·39
	Do. (Hills)	22·7	21·7	30·19	26·97	+3·22
	Do. (Brahmaputra)	17·6	18·0	18·20	19·11	−0·91
	Deltaic Bengal	17·7	16·2	14·82	12·00	+2·82
	Central do.	17·1	15·6	14·19	12·32	+1·87
	North do.	19·2	17·5	24·52	21·58	+2·94
	Bengal Hills	24·4	24·6	31·80	28·70	+3·10
	Orissa	17·1	14·6	19·52	11·99	+7·53
	Chota Nagpur	17·4	16·9	17·21	14·24	+2·97
	Bihar (South)	16·4	14·2	13·99	12·74	+1·25
	Do. (North)	15·0	14·6	13·51	13·57	−0·06
United Provinces of Agra and Oudh.	United Provinces (East)	17·6	13·5	18·03	11·80	+6·23
	Oudh (South)	17·9	12·2	13·94	10·96	+2·98
	Do. (North)	15·5	12·5	17·40	12·27	+5·13
	United Provinces (Central)	15·2	12·0	13·89	11·00	+2·89
	Do. do. (West)	12·9	9·6	10·16	7·36	+2·80
	Do. do. (East Submontane)	16·4	13·5	17·67	12·95	+4·72
	Do. do. (West do.)	15·2	13·1	15·46	14·89	+0·57
	Do. do. (Hills)	19·9	18·0	19·40	17·70	+1·70
Punjab and North-West Frontier Province.	Punjab (South-East)	7·5	7·3	7·72	6·40	+1·32
	Do. (South)	4·9	5·4	3·15	4·74	−1·59
	Do. (Central)	5·2	5·2	3·82	5·13	−1·31
	Do. (Submontane)	8·8	8·0	6·92	8·37	−1·45
	Do. (Hills)	15·1	14·1	11·38	15·46	−4·08
	Do. (North)	5·9	5·9	4·11	4·66	−0·55
	Do. (West)	2·6	3·1	1·53	2·56	−1·03
Bombay and Malabar Coast Districts (Madras).	Malabar	28·8	26·8	56·80	35·45	+21·35
	Travancore	22·6	...	28·04	...	...
	Madras (South Central)	3·1	3·6	1·50	1·76	−0·26
	Coorg	25·7	...	40·19	...	...
	Mysore	9·6	9·4	7·54	6·44	+1·10
	Konkan	26·5	26·6	37·89	40·58	−2·69
	Bombay Deccan	11·3	11·8	7·76	8·80	−1·04
	Khandesh	10·3	11·9	8·36	8·71	−0·35
Central Provinces and Berar.	Berar	14·4	12·2	10·87	9·35	+1·52
	Central Provinces (West)	15·0	14·5	10·79	13·38	−2·59
	Do. (Central)	16·1	16·7	13·96	16·62	−2·66
	Do. (East)	17·3	16·3	16·76	16·20	+0·56
Bombay (North)	Gujarat	7·4	15·1	12·28	16·46	−4·18
	Kathiawar and Cutch	4·7	10·8	4·31	10·68	−6·37
	Sind	0·4	2·7	0·24	2·40	−2·16
	Baluchistan Hills	0·6	1·5	0·28	0·86	−0·58
Rajputana and Central India.	Central India (East)	15·8	13·1	16·59	10·80	+5·79
	Rajputana (East), Central India (West)	10·5	9·5	11·02	8·08	+2·94
	Do. (West)	2·0	4·7	1·52	3·88	−2·36
Madras	East Coast (North)	11·7	10·6	7·56	7·25	+0·31
	Madras (Central)	3·9	5·7	1·61	2·85	−1·24
	East Coast (Central)	4·1	4·7	1·70	2·29	−0·59
	Do. (South)	4·4	4·5	2·00	2·65	−0·65
	Madras (South)	1·9	2·0	0·78	0·96	−0·18

The coast districts of Tenasserim, Lower Burma and Arakan received steady and almost daily rain throughout the month. The total fall of the month was normal in Tenasserim, in slight excess in Lower Burma and largely above the normal in Arakan.

Central Burma received numerous light showers during the first two weeks and moderate to heavy rain during the remainder of the month. The total fall of the period averaged 4·56 inches, or 36 per cent. in excess of the normal in that area.

In Upper Burma moderate to heavy rain occurred during the first five days and occasional showers during the remainder of the month, most general from the the 13th to the 18th. The rainfall of the month was somewhat irregularly distributed, although on the mean of the whole division it was 3 per cent. in excess.

The following comparative data for the seventeen districts will show the irregular character of the distribution in this division :—

District.	Rainfall.			
	Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Yamethin	5·26	5·38	—0·12	— 2
Meiktila	2·37	3·35	—0·98	— 29
Magwe	3·49	4·34	—0·85	— 20
Minbu	8·31	3·59	+4·72	+131
Pakokku	2·66	4·77	—2·11	— 44
Myingyan	1·84	2·61	—0·77	— 30
Lower Chindwin	3·37	3·19	+0·18	+ 6
Upper Chindwin	10·51	14·47	—3·96	— 27
Chin Hills	15·39	12·64	+2·75	+ 21
Kyaukse	2·73	3·61	—0·88	— 24
Sagaing	2·71	2·74	—0·03	— 1
Mandalay	6·33	5·15	+1·18	+ 23
Ruby Mines	17·40	11·52	+5·88	+ 51
Shwebo	4·58	5·07	—0·49	— 10
Katha	9·13	11·29	—2·16	— 19
Bhamo	15·25	15·84	—0·59	— 4
Myitkyina	24·09	20·45	+3·64	+ 18

Assam received general rain during the first twelve days of the month. A partial break set in on the 13th, and lasted until the 15th. Fairly general rain recommenced on the 16th, and continued during the remainder of the month.

The rainfall was heavy from the 7th to the 12th, during which period large amounts were recorded in the Goalpara, Lakhimpur and Cachar districts.

The following gives the most noteworthy falls in these districts during this period :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Goalpara	Kachugaon	8th July	10·75
	Marnai	9th ,,	6·72
Cachar	Jatinga Valley	10th ,,	7·20
Goalpara	Kachugaon	,, ,,	6·75
Lakhimpur	Balijan	,, ,,	5·45
Cachar	Nemotha	11th ,,	8·96
Goalpara	Kachugaon	12th ,,	6·62

The excessive character of the burst during this period is shown more fully by the fact that Kachugaon in the Goalpara district obtained a total of 30·06 inches on these six days, or 81 per cent. of the normal fall of the month.

Rain fell on 29 days of the month at Cherra Poonjee, but only on eight occasions did the daily fall exceed six inches in amount. The heaviest fall was 11·38 inches registered on the 9th. The total rainfall of the month at that station was 123·19 inches, or 9 per cent. in excess of the normal.

The following gives comparative data of the rainfall of the month in the plains districts :—

District.	Rainfall.			
	Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal
	Inches.	Inches.	Inches.	
Cachar	18·54	21·20	—2·66	—13
Sylhet	19·92	21·87	—1·95	— 9
Goalpara	27·50	24·37	+3·13	+13
Kamrup	13·56	15·23	—1·67	
Darrang	14·35	15·74	—1·39	— 9
Nowgong	14·15	14·32	—0·17	— 1
Sibsagar	15·29	15·02	+0·27	+ 2
Lakhimpur	23·88	21·25	+2·63	+12

The preceding data indicate that the rainfall was normal in the Nowgong and Sibsagar districts, in slight excess in Goalpara and Lakhimpur, and was below the normal in the remaining districts. The deficiency was greatest, both absolutely and relatively to the normal, in Cachar where it averaged 2·66 inches, or 13 per cent. of the normal.

Bengal obtained abundant rain during the month. The distribution of the rainfall was determined largely by the storms of the month and was hence very irregular. The following gives the chief periods of precipitation in the province :—

1st.—From the 2nd to the 12th, when the whole of the province obtained a moderate to heavy burst of rain. The districts of Jalpaiguri, Darjeeling, Cooch Behar and Dinajpur

received some heavy falls on the last three days of the period, of which the following were the most noteworthy : –

DISTRICT.	STATION.	DATE.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
JALPAIGURI	Alipur Duar	10th July	6·11
DINAJPUR	Atwari	,, ,,	5·69
	Raiganj	,, ,,	5·60
DARJEELING	Siliguri	12th ,,	9·50
COOCH BEHAR	Dinhatta	,, ,,	8·56
DARJEELING	Kurseong	,, ,,	5·94
DINAJPUR	Atwari	,, ,,	5·61
DARJEELING	Mongpoo	,, ,,	5·60
DINAJPUR	Birganj	,, ,,	5·56
JALPAIGURI	Bhagalpur	,, ,,	5·40
	Baxa	,, ,,	5·12

2nd.—14th and 15th.—Very heavy rain occurred on these two days in Orissa due to a strong determination of the Bombay current across that area, occasioning heavy floods.

The following gives the most noteworthy falls :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
ANGUL	Dhenkanal	14th July	7·94
CUTTACK	Jagatsingpur	,, ,,	5·00
PURI	Khurda	15th ,,	8·10
CUTTACK	Jagatsingpur	,, ,,	8·05
	Banki	,, ,,	7·65
PURI	Pipli	,, ,,	7·40
CUTTACK	Cuttack	,, ,,	6·90
PURI	Kanas	,, ,,	6·55
BALASORE	Soro	,, ,,	6·03
PURI	Gop	,, ,,	5·85

Only light showers occurred over the remainder of the province during this period.

3rd.—From the 16th to the 24th.—During this period two depressions affected the weather in the province.

The first formed over the head of the Bay on the 14th and, marching westwards, passed through South-West Bengal and Chota Nagpur on the 16th. The second, which was a slight disturbance, formed in North Bengal on the 19th and, drifting westwards, broke up in Bihar on the 20th. The rainfall during this period was heavy in East Bengal and moderate in other divisions. The following gives the more remarkable falls during this period :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
ANGUL	Pal Lahara	16th July	7·58
SINGHBHUM	Kharswan	,, ,,	7·39
CUTTACK	Banki	,, ,,	7·36
SINGHBHUM	Seraikilla	,, ,,	7·18
	Kalikapur	,, ,,	5·56
MANBHUM	Barahabhum	,, ,,	5·20
CHITTAGONG	Fenoa	17th ,,	8·80
	Chittagong	,, ,,	6·04
BACKERGUNGE	Patuakhali	,, ,,	6·00
NOAKHALI	Hatya	,, ,,	5·94
BACKERGUNGE	Daulatkhan	,, ,,	5·92
NOAKHALI	Noakhali	,, ,,	5·50
BACKERGUNGE	Barisal	,, ,,	5·47
SINGBHUM	Monaharpur	,, ,,	5·30
NOAKHALI	Harishpur	18th ,,	9·50
CHITTAGONG	Mirsarai	,, ,,	7·38
BACKERGUNGE	Pirojpur	,, ,,	6·00
CHITTAGONG	Fenoa	,, ,,	5·85
BACKERGUNGE	Patuakhali	,, ,,	5·66
CHITTAGONG	Cox's Bazar	,, ,,	5·06
	Mirsarai	19th ,,	5·15
	Chittagong	,, ,,	5·12
RANCHI	Bano	20th ,,	6·00
SINGHBHUM	Monaharpur	21st ,,	5·30
GAYA	Daudnagar	24th ,,	5·33
COOCH BEHAR	Cooch Behar	,, ,,	6·75
	Fulbari	,, ,,	6·55
	Mickliganj	,, ,,	5·50
JALPAIGURI	Debiganj	,, ,,	5·30
	Alipur Duar	,, ,,	5·15

4th.—From the 26th to the end of the month.—The burst of rain was light in North Bihar and heaviest in Orissa. The Cuttack, Balasore and Angul districts received very heavy rain on the 27th when a storm was in course of formation in Lower Bengal.

The following gives data for these three districts :—

DISTRICT.	Average actual rainfall of 24 hours preceding 8 A.M. of 27th.	Heaviest rainfall in district.
	Inches.	Inches.
Cuttack	3·25	5·70
Balasore	3·04	6·61
Angul	2·31	11·36

The following gives comparative rainfall data of the month for the rainfall divisions of the province:—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, July.	Average normal, July 1902.	Variation of actual from normal, July 1902.	Percentage variation from normal.	Average actual, July 1902.	Average normal, July.
	Inches.	Inches.	Inches.			
Eastern Bengal	23·82	18·26	+5·56	+30	20·8	19·1
Deltaic ditto	14·82	12·00	+2·82	+24	17·7	16·2
Central ditto	14·19	12·32	+1·87	+15	17·1	15·6
North ditto	24·52	21·58	+2·94	+14	19·2	17·5
Bengal Hills	31·80	28·70	+3·10	+11	24·4	24·6
Orissa	19·52	11·99	+7·53	+63	17·1	14·6
Chota Nagpur	17·21	14·24	+2·97	+21	17·4	16·9
South Bihar	13·99	12·74	+1·25	+10	16·4	14·2
North Bihar	13·51	13·57	−0·06	0	15·0	14·6

These data show that the rainfall of the month was normal in North Bihar, and more or less in excess in other divisions. The excess was, both absolutely and relatively to the normal, most marked in Orissa (7·53 inches, or 63 per cent.).

Notwithstanding the general excess, there were considerable irregularities in the local distribution.

The following data for each district of the Presidency illustrate these features:—

DISTRICT.	RAINFALL.			
	Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burdwan	10·84	12·25	−1·41	−12
Birbhum	17·76	13·49	+4·27	+32
Bankura	9·01	12·22	−3·21	−26
Midnapore	16·91	12·51	+4·40	+35
Hooghly	11·58	12·05	−0·47	− 4
Howrah	15·09	11·53	+3·56	+31
24-Parganas	12·81	13·00	−0·19	− 1
Calcutta	15·52	12·31	+3·21	+26
Nadia	8·72	10·36	−1·64	−16
Murshidabad	14·98	10·93	+4·05	+37
Jessore	10·47	10·64	−0·17	− 2
Khulna	16·62	13·10	+3·52	+27
Rajshahi	12·62	11·81	+0·81	+ 7
Dinajpur	21·95	16·17	+5·78	+36
Jalpaiguri	32·81	33·22	−0·41	− 1
Darjeeling	35·65	31·91	+3·74	+12
Cooch Behar	33·04	23·85	+9·19	+39
Rangpur	14·44	14·81	−0·37	− 2
Bogra	14·74	13·26	+1·48	+11
Pabna	9·63	11·06	−1·43	−13
Dacca	12·85	12·95	−0·10	− 1
Mymensingh	21·86	16·47	+5·39	+33
Faridpur	13·62	11·72	+1·90	+16
Backergunge	29·18	17·45	+11·73	+67
Tippera	12·01	13·39	−1·38	−10
Noakhali	31·97	24·01	+7·96	+33
Chittagong	35·31	26·16	+9·15	+35
,, Hill Tracts	21·17	19·15	+2·02	+11
Patna	11·42	12·40	−0·98	− 8
Gya	14·42	12·40	+2·02	+16
Shahabad	16·89	12·72	+4·17	+33
Saran	10·57	11·77	−1·20	−10
Champaran	18·41	13·72	+4·69	+34
Muzaffarpur	12·37	12·03	+0·34	+ 3
Darbhanga	13·89	12·39	+1·30	+10
Monghyr	11·13	13·33	−2·20	−17
Bhagalpur	11·51	12·72	−1·21	−10
Purnea	17·08	18·16	−1·08	− 6
Malda	11·48	12·91	−1·43	−11
Sonthal Parganas	18·21	12·68	+5·53	+44
Cuttack	21·97	11·89	+10·08	+85
Balasore	17·47	12·15	+5·32	+44
Puri	19·16	10·91	+8·25	+76
Hazaribagh	14·29	14·33	−0·04	0
Ranchi	15·89	14·38	+1·51	+10
Palamau	13·64	13·85	−0·21	− 2
Manbhum	13·33	12·81	+0·52	+ 4
Singbhum	20·68	15·08	+5·60	+37

Weather was fine over by far the greater part of the United Provinces on the 1st. General rain, due to a strong determination of the easterly humid winds across the Bengal Coast, occurred between the 2nd and the 9th. The rainfall during this period was moderate to heavy in the east-submontane and hill districts, and moderate over the remainder of the province.

The following statement, giving the most noteworthy

daily falls, indicates the districts of heaviest precipitation :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Azamgarh	Muhammadabad	3rd July	5·40
Bara Banki	Fatehpur	4th ,,	4·97
Dehra Dun	Raipur	,, ,,	4·27
	Rajpur	,, ,,	4·12
Mainpuri	Gopalpur	5th ,,	4·95
Gorakhpur	Maharajganj	6th ,,	8·64
Basti	Khalilabad	,, ,,	6·60
Naini Tal	Naini Tal	,, ,,	5·68
Dehra Dun	Ambari	7th ,,	8·11
Fyzabad	Tanda	,, ,,	7·11
Basti	Domariaganj	,, ,,	6·20
	Basti	,, ,,	6·13
Gonda	Tarabganj	,, ,,	4·75
Jaunpur	Khutahan	,, ,,	4·53
Dehra Dun	Chakrata (Tahsil)	,, ,,	4·50
Naini Tal	Naini Tal	,, ,,	4·15
Basti	Bansi	,, ,,	4·06

A short period of showery weather followed lasting from the 11th to the 16th. The showers were most frequent and heaviest in the hill and west-submontane districts. Thus the Bareilly district obtained an average of 3·52 inches on the 13th.

General rain set in again on the 17th and continued until the 24th. The rainfall during this period was due to two cyclonic storms and was heaviest in the Allahabad, Agra, Jhansi, Saharanpur and Almora districts.

The following gives the largest daily amounts recorded during this period :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jhansi	Lalitpur	18th July	8·01
	Narhat	,, ,,	7·10
Agra	Bhikapur	19th ,,	8·01
Saharanpur	Salimpur	,, ,,	6·11
Allahabad	Sirathu	21st ,,	11·42
Almora	Chaukuri	24th ,,	8·70

Strong monsoon winds, chiefly from the Arabian Sea, obtained during the next three days and gave moderate to heavy rain, except in the central and western districts, where little or no rain fell during this period.

The following gives the heaviest falls:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Almora	Pirpulta	25th July	7·16
Gorakhpur	Maharajganj	,, ,,	6·70
Bareilly	Oganpur	,, ,,	6·10
Pilibhit	Pilibhit	,, ,,	6·00
Sitapur	Biswan	,, ,,	5·14
Naini Tal	Kilpuri	26th ,,	10·36
Pilibhit	Amaria	,, ,,	9·07
	Pilibhit (Kachahri)	,, ,,	7·06
	,, (City)	,, ,,	7·02
Bareilly	Oganpur	,, ,,	7·02
Kheri	Mohamdi	,, ,,	5·75
Sitapur	Sidhauli	,, ,,	5·35
Bareilly	Choreli	,, ,,	5·02
Allahabad	Meja	27th ,,	5·82
	Barah	,, ,,	5·32
	Allahabad	,, ,,	5·18
Basti	Basti	,, ,,	5·05

The burst was hence heaviest in the Pilibhit, Almora and Naini Tal districts.

A storm of feeble intensity from the Bay passed into the south-eastern districts of the Province on the 28th and, drifting slowly in a west-north-west direction, lay in the neighbourhood of Jhansi at the end of the month.

Moderate to heavy rain occurred along the path of the storm in the central, western and eastern districts, and light to moderate rain over the remainder of the province.

The following statement giving the heaviest daily falls shows the character of the precipitation during this period :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Barabanki	Fatehpur	28th July	6·37
	Sanchighat	,, ,,	5·21
Mirzapur	Chunar	29th ,,	9·12
Banda	Baberu	,, ,,	7·72
	Mau	,, ,,	6·32
	Kamasin	,, ,,	5·46
Fatehpur	Fatehpur	,, ,,	5·03
	Barwasagar	30th ,,	7·00
Jhansi	Jhansi	,, ,,	6·86
	Magarwara	,, ,,	5·25

The following is a summary of the rainfall data of the month :—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.	Average actual, July 1902.	Average normal, July.
	Inches.	Inches.	Inches.			
United Provinces, East .	18·03	11·80	+6·23	+53	17·6	13·5
South Oudh . .	13·94	10·96	+2·98	+27	17·9	12·2
North Oudh . .	17·40	12·27	+5·13	+42	15·5	12·5
United Provinces, Central	13·89	11·00	+2·89	+26	15·2	11·0
„ „ West .	10·16	7·36	+2·80	+38	12·9	9·6
„ „ East-Submontane.	17·67	12·95	+4·72	+37	16·4	13·5
United Provinces, West-Submontane.	15·46	14·89	+0·57	+4	15·2	13·1
United Provinces, Hills .	19·40	17·70	+1·70	+10	19·9	18·0

The table shows that the rainfall of the month was approximately normal in the hill and west-submontane divisions, and in moderate to considerable excess over the remainder of the province. The excess was greatest in actual amount, as well as relatively to the normal, in the eastern division (6·23 inches or 53 per cent.) and North Oudh (5·13 inches or 42 per cent.).

The greater part of the Punjab received fairly general rain between the 2nd and the 8th. The rainfall during this period was moderately heavy in the Umballa, Rawalpindi, Hoshiarpur and Kangra districts, and light to moderate over the remainder of the province.

The following gives the falls exceeding three inches in 24 hours recorded during this period :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
KANGRA . . .	Dera . . .	5th July .	4·30
UMBALLA . .	Kasauli . . .	6th „ .	4·90
	Naraingarh . .	„ „ .	4·54
	Dadupur . . .	7th „ .	4·00
HOSHIARPUR . .	Una	„ „ .	3·62
RAWALPINDI . .	Fatah Jang . .	8th „ .	3·20

Weather was fine during the next eight days except in the hill, submontane and south-eastern districts where it was feebly disturbed with occasional showers. These showers were, on the whole, heaviest on the 14th.

The cyclonic storm of the third week of the month gave moderate to heavy rain to the south-eastern districts, and light to moderate rain to the submontane and hill districts.

The following gives some of the more remarkable falls recorded during this burst :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
GURGAON . .	Sohna . . .	18th July .	5·70
	Nuh . . .	„ „ .	4·00
	Tauru . . .	„ „ .	4·00
	Farukhnagar . .	„ „ .	3·10
DELHI . . .	Sonepat . . .	19th „ .	4·57
	Delhi . . .	„ „ .	3·13
GURGAON . .	Farukhnagar . .	20th „ .	3·40
KARNAL . . .	Karnal . . .	„ „ .	3·38
UMBALLA . .	Umballa . . .	„ „ .	3·18

The hill and submontane districts of the province received moderate to heavy rain between the 22nd and 28th from a strong influx of humid winds across the Sind and Kathiawar Coasts. No rain fell during this period in the districts of Mooltan, Dera Ghazi Khan and Muzzaffargarh, and only scattered showers in the southern and central divisions.

This burst of rain was followed by a break over the greater part of the province which lasted until the end of the month.

The following gives comparative data for the various districts of the province :—

DISTRICT.	RAINFALL.			
	Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hissar	2·99	4·31	—1·32	—31
Ferozepore	3·05	4·11	—1·06	—26
Montgomery	0·73	2·53	—1·80	—71
Gurgaon	8·59	6·55	+2·04	+31
Rohtak	5·53	5·91	—0·38	— 6
Delhi	8·39	6·18	+2·21	+36
Karnal	5·72	6·62	—0·90	—14
Lahore	2·71	5·01	—2·30	—46
Umballa	12·8	9·77	+3·41	+25
Ludhiana	8·04	7·30	+0·74	+10

DISTRICT.	RAINFALL. Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jullundur	6·33	7·24	—0·91	—13
Hoshiarpur	7·82	9·29	—1·47	—16
Gurdaspur	6·99	11·38	—4·39	—39
Amritsar	3·74	5·98	—2·24	—37
Simla	9·76	10·85	—1·09	—10
Kangra	10·94	18·06	—7·12	—39
Gujranwala	4·08	5·16	—1·08	—20
Sialkot	5·72	7·64	—1·92	—25
Gujarat	6·09	6·15	—0·06	— 1
Jhelum	6·12	4·60	+1·52	+33
Rawalpindi	4·30	7·24	—2·85	—39
Mianwali	2·43	2·31	+0·12	+ 5
Shahpur	2·80	3·52	—0·72	—20
Jhang	2·04	2·83	—0·79	—28
Dera Gazi Khan	0·02	1·76	—1·74	—99
Muzaffargarh	0·47	1·83	—1·36	—74
Mooltan	0·98	1·45	—0·47	—32

The rainfall of the month differed little from the normal in the Rohtak, Gujarat and Mianwali districts. It was in excess in the Gurgaon, Delhi, Umballa, Ludhiana and Jhelum districts, due chiefly to the heavy rainfall occasioned by the cyclonic storm in the third week of the month. The rainfall of the month was, on the other hand, more or less in defect over the remainder of the province. The deficiency was large and marked in the districts of Dera Ghazi Khan (99 per cent.), Muzaffargarh (74 per cent.), Montgomery (71 per cent.), Lahore (46 per cent.), and Gurdaspur, Rawalpindi and Kangra (each 39 per cent.).

The month was rainless over by far the greater part of Baluchistan. Thundershowers were received in the Zhob and Thal Chotiali districts from the 1st to the 7th, the 14th to the 18th, and the 26th to the 29th.

The total rainfall of the month averaged only 0·28 inch in amount, or 0·58 inch below the normal.

Kashmir had numerous showers from the 1st to the 8th, and again between the 21st and 26th, and local showers from the 13th to the 19th, and the 27th to the end of the month. The total fall of the month varied irregularly from the normal, but was generally in slight to moderate defect.

The rainfall of the month was barely half the normal amount in West Rajputana including the states of Jaisalmer, Jodhpur and Bikaner, and occurred as local showers, chiefly between the 14th and 19th.

East Rajputana, on the other hand, received abundant rain during the month, the periods of most general rain being the 1st to the 7th, the 12th to the 15th, the 17th to the 19th, the 21st to the 23rd, and the 29th to the 31st. The rainfall was on the whole heaviest in the Bhartpur, Dholpur, Karauli and Kotah States.

The following gives the most noteworthy daily falls (over 5 inches) in that area:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
DUNGARPUR	Dungarpur	16th July.	5·20
KUSALGARH	Kusalgarh.	17th ,,	6·39
KOTAH	Manoharthana	,, ,,	6·10
KARAULI	Sapotra	,, ,,	5·70
JAIPUR	Gangapur	18th ,,	5·50
PARTABGARH	Partabgarh	,, ,,	5·32
KOTAH	Atroo	22nd ,,	7·46
DHOLPUR	Bari	23rd ,,	5·95
KOTAH	Sanjod	30th ,,	5·90
JAIPUR	Siwai Madhopur	,, ,,	5·15
KARAULI	Sapotra	,, ,,	5·15
KOTAH	Shahabad	,, ,,	5·05
	Shahabad	31st ,,	7·14
BHARTPUR	Rupbas	,, ,,	6·70

The following statement gives comparative data of the rainfall for the more important states of Rajputana:—

DISTRICT.	RAINFALL. Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jaisalmer	0·31	2·03	—1·72	— 85
Jodhpur	1·62	4·10	—2·48	— 60
Bikaner	0·93	3·28	—2·35	— 72
Jaipur	7·61	7·20	+0·41	+ 6
Alwar	6·98	6·39	+0·59	+ 9
Bhartpur	15·76	7·63	+8·13	+107
Dholpur	17·62	8·65	+8·97	+104
Karauli	22·39	8·27	+14·12	+171
Kotah	17·44	10·40	+7·04	+ 68
Ajmer-Merwara	4·31	7·12	—2·81	— 39
Udaipur	5·64	9·31	—3·67	— 39
Sirohi	1·71	11·73	—10·02	— 85

The data show that the rainfall of the month was exceptionally heavy in the Bharatpur, Dholpur, Karauli and Kotah states which received two to three times their normal amount. It was, on the other hand, in serious defect in Sirohi and Jaisalmer (each 85 per cent.), Bikaner (72 per cent.) and Jodhpur (60 per cent.).

In Central India rain was fairly general throughout the month except between the 25th and the 27th, during which period there was an almost complete break. The periods of most general and heavy rain were the 17th and 18th, 21st and 22nd, and 29th and 30th, and hence coincided with the passage of the storms of the month through that area.

The following gives the most noteworthy amounts recorded in this area during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Gwalior	Sitaman	15th July	7·25
Gwalior	Psagarh	17th ,,	9·69
Bundelkhand	Buxwaho	,, ,,	5·65
Gwalior	Sailana	,, ,,	5·62
Bundelkhand	Nowgong	,, ,,	5·35
Bhopal Agency	Kurwai	18th ,,	7·64
Bhopal Agency	Narsinghgarh	,, ,,	6·33
Bhopal Agency	Biaora	,, ,,	5·61
Bundelkhand	Simariya	21st ,,	5·10
Bundelkhand	Nowgong	22nd ,,	9·16
Bhopal Agency	Kurwai	,, ,,	7·60
Bundelkhand	Panna	,, ,,	6·27
Bundelkhand	Shahnagar	,, ,,	5·20
Bhopal Agency	Narsinghgarh	25th ,,	6·33
Gwalior	Pichhor	29th ,,	5·62
Bundelkhand	Chhatarpur	30th ,,	5·91
Gwalior	Pichhor	,, ,,	5·28
Bundelkhand	Nowgong	,, ,,	5·25
Gwalior	Goona	31st ,,	6·00

The rainfall of the month was more or less largely in excess over the whole area.

The following gives comparative data for the larger states:—

District.	Rainfall. Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Bhopal Agency	16·60	11·04	+5·56	+50
Gwalior	15·15	8·83	+6·32	+72
Rewah	18·05	14·50	+3·55	+24
Bundelkhand	18·38	12·71	+5·67	+45

The Central Provinces had more or less rain daily throughout the month. As no cyclonic storms passed through that area, the daily falls were generally light to moderate in amount and the rainfall of the month was hence, on the average of the whole area, 4·69 inches, or 10 per cent below the normal.

The following table gives comparative data for the three divisions of the province:—

Division.	Rainfall. Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.	Number of rainy days. Average actual, July 1902.	Average normal, July.
	Inches.	Inches.	Inches.			
Central Provinces, West	10·79	13·38	—2·59	—20	15·0	14·5
Central-Provinces, Central.	13·96	16·62	—2·66	—16	16·1	16·7
Central-Provinces, East.	16·76	16·20	+0·56	+ 3	17·3	16·3

These data show that the precipitation of the month was normal in the eastern division, the region nearest to the tracks of the cyclonic storms of the month, and in defect in the western and central districts.

Berar received rain during three well-defined periods, *viz.*, the 1st to the 9th, the 13th to the 19th, and the 22nd to the 27th. Some heavy falls were received during the second period. The following gives the most noteworhy:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Akola	Khamgaon	13th ,,	6·15
Buldana	Pimpalgaon Raja	,, ,,	4·46
Buldana	Nandura	,, ,,	4·45
Wun	Yeotmal (civil station)	18th ,,	5·59

The rainfall of the month was 16 per cent. in excess of the normal.

Mysore obtained general and moderate to heavy rain between the 15th and the 19th and numerous showers during the first and last weeks of the month, heaviest and most general in the Hassan, Shimoga and Kadur districts. The rainfall of the month was less than usual in the Bangalore, Tamkur and Shimoga districts, and above the normal in the remaining five districts of the province, the excess being largest in actual amount in the Hassan and Kadur districts, which received heavy rain from the 15th to the 17th.

Comparative data for the various districts of the province are given below :—

District.	Rainfall			
	Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Bangalore	2·60	2·99	−0·39	−13
Kolar	3·02	2·60	+0·42	+16
Tumkur	1·42	2·51	−1·09	−43
Mysore	3·51	1·83	+1·68	+92
Hassan	9·77	7·10	+2·67	+38
Shimoga	21·79	22·01	−0·22	−1
Kadur	23·83	17·25	+6·58	+38
Chitaldroog	2·42	2·11	+0·31	+15

A partial break obtained on the Konkan Coast at the commencement of the month. Heavy rain, due to a strong burst of monsoon winds began in the South Konkan on the 3rd and continued until the 7th. A depression formed in the angle between the Kathiawar and Konkan Coasts on the 5th, and passed into Kathiawar on the 7th. The indraught to this disturbance gave abnormal south-easterly winds on the North Konkan Coast, and the rainfall in that area was not so heavy as in the South Konkan. The monsoon current was rather weak and was deflected largely to the Kathiawar Coast during the next five days. During this period the rainfall, although general over the whole of the Konkan, was moderate in amount. The current strengthened rapidly on the 13th and was very vigorous during the next four days. A heavy burst of rain took place during this period and falls of from 5 to 11 inches in 24 hours occurred at a large number of stations. The monsoon winds began to fall off on the 17th and were below their normal strength during the greater part of the rest of the month. This period was hence one of light to moderate precipitation.

The following statement giving the more noteworthy daily falls (upwards of 6 inches) recorded during the month shows the periods and areas of heavy precipitation :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ratnagiri	Malvan	3rd July	14·57
	Vengurla	,, ,,	13·20
North Kanara	Karwar	,, ,,	12·05
	Bhatkal	,, ,,	10·78
North Kanara	Honavar	3rd July	9·90
	Ankola	,, ,,	9·82
Savantvadi	Kudal	,, ,,	7·90
North Kanara	Kumta	,, ,,	7·13
	Ankola	4th ,,	6·90
	Karwar	,, ,,	6·03
Savantvadi	Kudal	6th ,,	6·60
Ratnagiri	Malvan	,, ,,	6·40
North Kanara	Honavar	7th ,,	7·67
	Kumta	,, ,,	6·80
Savantvadi	Banda	,, ,,	6·70
	Savantvadi	,, ,,	6·04
Kolaba	Panvel	14th ,,	11·20
Ratnagiri	Madangad	,, ,,	10·90
Kolaba	Pen	,, ,,	10·70
	Khalapur	,, ,,	10·60
	Matheran	,, ,,	10·05
	Roha	,, ,,	9·73
Ratnagiri	Dapoli	,, ,,	9·71
Kolaba	Mangaon	,, ,,	9·34
	Karjat	,, ,,	9·25
Ratnagiri	Chiplun	,, ,,	9·12
	Guhagar	,, ,,	8·73
Kolaba	Alibag	,, ,,	7·43
Thana	Shahapur	,, ,,	7·10
Kolaba	Mahad	,, ,,	6·75
Thana	Mokhada	16th ,,	9·45
	Shahapur	,, ,,	8·58
	Dahanu	,, ,,	6·70
	Mokhada	17th ,,	6·65

The total rainfall of the month averaged 37·89 inches in the Konkan, and was 2·69 inches or 7 per cent. below the normal of the month.

The Bombay Deccan and Khandesh received some light showers during the first five days of the month, and general rain throughout the remainder of the month. The 12th and 13th were the only days on which the rainfall was partial. Large amounts were received on the

16th and 17th in the Satara, Poona and Nasik districts, of which the following were the most noteworthy :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Satara	Malcolmpeth	16th July	13·85
Nasik	Peint	,, ,,	8·35
Poona	Lanoli	,, ,,	6·83
Nasik	Trimbak	,, ,,	6·67
	Igatpuri	17th ,,	12·20
	Trimbak	,, ,,	8·69
	Peint	,, ,,	8·18
Poona	Lanoli	,, ,,	6·95
Satara	Malcolmpeth	18th ,,	7·45

The total rainfall of the month in these areas did not differ to any important extent from the normal, being only 4 per cent. in defect in Khandesh and 12 per cent. in defect in the Bombay Deccan.

Fine, dry weather prevailed over Gujarat from the 1st to the 4th. Rain began on the 5th and was general over the whole province during the next five days, the daily falls being generally moderate in amount. Little rain fell during the next three days, but fairly general rain recommenced on the 14th and continued until the 18th, some remarkable downpours being received on the 15th, 16th and 17th, amongst which the following were the more noteworthy :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Surat Agency	Dharampur	15th July	10·15
Surat	Balsar	16th ,,	11·20
Surat Agency	Dharampur	,, ,,	8·85
Surat	Pardi	,, ,,	7·36
	Valod	,, ,,	7·23
	Chikhli	,, ,,	6·58
Surat Agency	Bansda	,, ,,	5·57
Surat	Rander	17th ,,	22·42
	Surat	,, ,,	17·52
Broach	Ankleshvar	17th July	13·20
Surat	Olpad	,, ,,	12·10
	Jalalpor	,, ,,	9·10
Broach	Broach	,, ,,	8·65
	Ilav	,, ,,	8·60
Surat	Balsar	,, ,,	8·37
Surat Agency	Dharampur	,, ,,	7·95
	Sachin	,, ,,	7·83
Surat	Bardoli	,, ,,	6·64

During the remainder of the month, weather was showery in the Surat district, and fine with occasional thundershowers of little value in the remainder of the province.

The rainfall in this area was neither so frequent nor so heavy as usual. Thus the actual number of rainy days was only 7·4 as compared with 15·5, the normal of the month, and the actual rainfall, 4·18 inches, or 25 per cent. below the normal.

No rain fell in Kathiawar during the first five days of the month, but moderate to heavy rain was received from the 6th to the 11th due to the feeble cyclonic storm which passed into that area from the Arabian Sea on the 7th. Light to moderate showers were received during the succeeding eight days. An exceptionally heavy local fall of 18 inches occurred at Porbandar on the 9th.

Sind and Cutch were only slightly affected by the disturbed conditions of the month and hence received only local showers. The rainfall in all these areas was in defect, the deficiency averaging 90 per cent. in Sind and 60 per. cent. in Kathiawar and Cutch.

The following table gives comparative data of the rainfall of the month for the six divisions of the Bombay Presidency :—

Division.	Rainfall.				Number of rainy days.	
	Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.	Average actual, July 1902.	Average normal, July.
	Inches.	Inches.	Inches.			
Konkan	37·89	40·58	−2·69	−7	26·5	26·6
Bombay Deccan	7·76	8·80	−1·04	−12	11·3	11·8
Khandesh	8·36	8·71	−0·35	−4	10·3	11·9
Gujarat	12·28	16·46	−4·18	−25	7·4	15·1
Kathiawar and Cutch.	4·31	10·68	−6·37	−60	4·7	10·8
Sind	0·24	2·40	−2·16	−90	0·4	2·7

The Malabar Coast districts obtained unusually abundant rain. The periods of heaviest precipitation were the 2nd to the 10th, the 13th to the 18th, and the 29th to the 31st. The following gives the average daily rainfall during these periods :—

Period.	Date.	Average actual rainfall during 24 hours preceding 8 A.M. of date.			
		Malabar.	South Canara.	Travancore State.	Coorg.
		Inches.	Inches.	Inches.	Inches.
First	2nd July	2·59	1·39	1·21	0·34
	3rd ,,	0·94	5·68	0·64	0·51
	4th ,,	1·17	2·92	1·03	0·79
	5th ,,	2·55	4·97	2·45	1·73
	6th ,,	2·61	6·70	1·28	2·23
	7th ,,	2·41	4·24	0·88	2·10
	8th ,,	1·21	1·90	0·60	1·87
	9th ,,	1·42	3·00	0·52	1·39
	10th ,,	2·52	3·44	1·12	0·57
Second	13th ,,	2·04	1·76	0·92	1·43
	14th ,,	2·04	1·47	0·78	2·81
	15th ,,	2·68	2·07	1·43	5·40
	16th ,,	5·15	1·95	1·69	5·63
	17th ,,	2·44	1·30	2·14	4·49
	18th ,,	2·45	1·89	1·02	2·06
Third	29th ,,	3·77	2·34	1·47	1·04
	30th ,,	3·40	5·17	1·20	0·41
	31st ,,	0·59	1·70	0·56	0·49

Heavy downpours were received at several stations during these periods, the following being the most noteworthy :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
South Canara	Koondapur	3rd July	9·90
	Baindur	,, ,,	8·76
	Hosdrug	5th ,,	9·05
	Bantwal	6th ,,	9·30
	Hosdrug	,, ,,	8·18
Coorg	Dunkeld Estate	15th ,,	10·49
	Gonikopal	,, ,,	8·06
	Horur Estate	16th ,,	12·00
Malabar	Mannarghat	16th July	11·22
	Vayittiri	,, ,,	10·85
	Manantoddy	,, ,,	10·20
	Manjeri	,, ,,	9·23
	Nilambur	,, ,,	9·10
Coorg	Virajpet	,, ,,	8·09
	Gonikopal	17th ,,	12·38
Malabar	Manantoddy	,, ,,	8·68
	Vayittiri	,, ,,	8·11
South Canara	Koondapur	30th ,,	14·72
	Udipi	,, ,,	10·87

The total rainfall of the month was much above the normal in the Malabar and South Canara districts, as is shown by the following data :—

District.	Rainfall.			
	Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Malabar	52·77	30·29	+22·48	+74
South Canara	65·59	44·62	+20·97	+47

The data indicate that rain occurred at the rate of nearly two inches per day throughout the month in these two districts.

The northern coast districts of Madras had somewhat more frequent rain than usual, the days of most general and heaviest rain being the 2nd, 7th, 15th, 16th, 21st, 22nd and 25th. The rainfall of the month was about normal (4 per cent. in excess) on the mean of the whole division but was very irregularly distributed.

The following data for the four districts show the irregularity of its distribution :—

District.	Rainfall.			
	Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	9·54	7·80	+1·74	+22
Vizgapatam	4·18	5·42	—1·24	—23
Godavari	8·74	6·51	+2·23	+34
Kistna	5·12	5·36	—0·24	— 4

The Coromandel Coast districts (including the divisions of East Coast, South and Central) received fairly general rain on the 3rd, 10th, 11th, 29th, 30th and 31st. The falls were, however, generally light, and the rainfall of the month was 25 per cent. below the normal.

The following data for the six districts show fully the lightness of the rainfall in this area :—

District.	Rainfall.			
	Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Nellore	1·70	2·29	−0·59	−26
Madras	4·24	3·84	+0·40	+10
Chingleput	2·98	3·60	−0·62	−17
North Arcot	2·47	2·99	−0·52	−18
South Arcot	3·03	2·92	+0·11	+ 4
Tanjore	0·78	1·98	−1·20	−61
Trichinopoly	0·60	1·61	−1·01	−13

South and South-Central Madras obtained occasional showers which gave average totals less than the monthly normals for the divisions.

The following gives data for the four districts included in these divisions :—

District.	Rainfall.			
	Average actual, July 1902.	Average normal, July	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Madura	0·74	1·07	−0·33	−31
Tinnevelly	0·82	0·61	+0·21	+34
Salem	1·27	2·21	−0·94	−43
Coimbatore	1·77	1·15	+0·62	+54

Light showers occurred in Central Madras, chiefly on the 1st, 2nd, 6th, 14th, 15th, 22nd, 30th and 31st. The rainfall of the month was in defect in all the four districts of the division, the deficiency being most pronounced in Kurnool, which obtained barely one-third of its normal fall.

The following gives data for these districts :—

District.	Rainfall.			
	Average actual, July 1902.	Average normal, July.	Variation of actual from normal, July 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah	2·17	2·74	−0·57	−21
Anantapur	1·40	2·02	−0·62	−31
Bellary	1·57	2·52	−0·95	−38
Kurnool	1·22	4·05	−2·83	−70

HEM RAJ.

Table I.—Abstract of Observations taken at 8 a.m. at 227 Stations in India, Burma, etc., in July, 1902.

Table

Abstract of Observations taken at 8 A.M. at 227

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.				+·008								85·2	+0·4	76·1	+0·7	80·7	+0·6	9·1					17·1
1	Tenasserim and Bay Islands.	Car Nicobars	25	29·839		29·791	29·929	22nd	29·770	14th	·159	79·2	85·9		76·9		81·4		9·0	89·0	26th	73·4	22nd	15·6
		Port Blair	61	29·773	+·006	29·765	29·909	22nd	29·668	12th	·241	82·5	86·4	+1·0	79·1†	+1·7	82·8†	+1·4	7·3	88·7	3rd	76·1	5th, & 13th.	12·6
		Mergui	96	29·785	+·018	29·810	29·913	21st	29·659	13th	·254	79·6	87·4	+2·9	75·4	+2·9	81·4	+2·9	12·0	91·6	7th	72·4	2 days	19·2
		Tavoy	26	29·853	+·014	29·811	29·981	21st	29·733	13th	·248	77·5	83·8	+0·5	74·7	+0·6	79·3	+0·6	9·1	90·2	4th	72·0	5 days	18·2
		Moulmein	94	29·738	+·020	29·770	29·867	22nd	29·599	13th	·268	77·4	84·2	+1·2	73·9	−0·3	79·1	+0·5	10·3	90·5	6th & 8th.	70·8	23rd	19·7
2	Lower Burma	Rangoon	41	29·754	?	29·732	29·891	22nd	29·599	13th	·292	78·9	85·0	−0·3	75·7	−0·1	80·4	−0·2	9·3	91·1	3rd	72·9	4 days	18·2
		Bassein	27	29·759	+·012	29·722	29·901	22nd	29·597	13th	·304	79·4	84·8	+0·2	76·8	+1·0	80·9	+0·6	8·1	91·2	3rd & 4th.	74·6	3 days	16·6
		Diamond Island	41	29·741	−·005	29·717	29·880	22nd	29·588	13th	·292	82·2	85·1	+0·8	77·3	+1·7	81·2	+1·3	7·8	87·9	2 days.	74·0	31st	13·9
5	Arakan	Akyab	20	29·678	−·011	29·641	29·826	22nd	29·464	15th	·362	79·8	83·7	−1·0	77·0	−0·5	80·4	−0·8	6·7	89·9	6th	74·2	23rd	15·7
3	Central Burma	Toungoo	182	29·602	+·013	29·727	29·735	22nd	29·423	13th	·312	79·5	85·2	−1·5	74·0	−1·1	79·6	−1·3	11·2	92·6	6th	71·6	16th	21·0
	II.—Burma Inland				+·006								89·4	−0·7	76·3	−0·1	82·9	−0·4	13·2					21·8
3	Central Burma	Thayetmyo	130	29·623	?	29·705	29·770	6th	29·453	14th	·317	80·1	88·8	−0·1	76·8	+0·5	82·8	+0·2	12·0	94·5	5th	73·6	18th	20·9
4	Upper Burma	Minbu	165	29·563	+·009	29·668	29·730	6th	29·398	14th	·332	80·5	90·2	−1·1	77·5	+0·3	83·9	−0·4	12·7	97·1	2nd	74·6	2 days	22·5
		Yamethin	657	29·090	+·004	29·760	29·241	6th	28·928	14th	·313	79·4	89·1	−0·9	75·0	+0·4	82·1	−0·3	14·1	95·3	2 days	73·1	29th	22·2
		Mandalay	250	29·469	+·010	29·666	29·654	6th	29·336	14th	·318	83·4	93·3	−0·9	77·4	−1·0	85·4	−1·0	15·9	99·0	31st	74·2	3 days	24·8
		Kindat	377	29·310	?	29·641	29·490	6th	29·138	13th	·352	79·6	87·9	−0·7	76·5	−0·2	82·2	−0·5	11·4	92·3	2 days	73·3	2nd	19·0
		Bhamo*	381	29·308	0	29·644	29·507	6th	29·178	13th	·329	77·4	87·3	−0·5	74·5	−0·6	80·9	−0·6	12·8	92·5	27th	71·1	2nd	21·4
4(a)	Burma Hill Stations.	Maymyo		26·288			26·415	7th	26·178	14th	·237	71·0	77·3		66·3		71·8		11·0	81·0	31st	61·8	29th	19·2
		Lashio		26·953	−·016		27·147	6th	26·823	14th	·324	75·7	83·2	−0·4	69·9	+0·6	76·6	+0·1	13·3	92·0	14th	67·0	3 days	25·3
	III.—Assam				−·016								88·7	−1·4	77·2	−0·4	83·0	−0·9	11·5					19·6
7	Surma	Silchar	104	29·556	−·012	29·611	29·749	6th	29·335	15th	·414	81·8	90·4	?	77·6	+0·4	84·0	?	12·8	98·1	15th	74·3	2 days	23·8
9	Brahmaputra	Sibsagar	333	29·306	−·026	29·594	29·486	6th	29·130	15th	·356	79·9	88·6	−1·4	77·5	−0·4	83·1	−0·9	11·1	93·2	2 days	75·0	2 days	18·2
		Dhubri	115	29·498	−·011	29·568	29·703	6th	29·298	15th	·405	80·7	86·1	?	78·0	−0·3	82·1	?	8·1	90·2	14th	74·8	2 days	15·4
		Gauhati	195	29·436		29·585	29·626	6th	29·302	14th	·324	81·4	90·4		77·9		84·2		12·5	94·0	16th	75·0	2 days	19·0
		Tezpur	252	29·380		29·592	29·558	6th	29·202	15th	·356	79·6	89·3		77·4		83·4		11·9	93·6	16th	74·9	2 days	18·7
		Dibrugarh	353	29·291		29·603	29·471	6th	29·129	15th	·342	78·8	87·6		74·8		81·2		12·8	94·2	30th	71·5	3rd	22·7
	IV.—Bengal and Orissa				−·017								88·1	−0·4	78·2	−0·3	83·2	−0·3	9·9					19·2
6	East Bengal	Chittagong	87	29·556	−·022	29·590	29·721	6th	29·300	15th	·421	79·8	84·7	−1·0	76·1	−0·5	80·4	−0·8	8·6	90·0	2 days	74·6	4 days	15·4
		Noakhali	43	29·579		29·569	29·751	6th	29·339	15th	·412	80·8	85·2		77·1		81·2		8·1	88·7	14th & 15th.	71·9	1st	16·8
		Comilla	36	29·596		29·579	29·771	6th	29·371	15th	·400	80·1	87·0		76·7		81·9		10·3	92·3	14th	71·8	1st	20·5
		Sirajganj	49	29·548		29·547	29·757	6th	29·314	15th	·443	80·4	86·4		77·9		82·2		8·5	91·3	14th	73·2	1st	18·1
		Narayanganj	26	29·586	−·012	29·560	29·780	6th	29·359	15th	·421	81·8	87·0	−1·3	78·8	−0·4	82·9	−0·9	8·2	91·1	3 days	75·2	2 days	15·9
		Barisal	15	29·579	−·026	29·537	29·753	6th	29·333	15th	·420	81·6	86·7	−0·6	78·0	−0·6	82·4	−0·6	8·7	96·8	13th	74·1	1st	22·7
		Mymensingh	59	29·551	−·018	29·561	29·755	6th	29·350	15th	·405	81·2	86·5	−0·6	78·0	−0·3	82·3	−0·5	8·5	91·2	3 days	74·6	1st	16·6
10	Deltaic Bengal	Faridpur	46	29·559		29·553	29·756	6th	29·338	15th	·418	81·7	87·0		78·4		82·7		8·6	90·8	15th	73·9	1st	16·9
		Jessore	33	29·549	−·023	29·529	29·740	6th	29·294	16th	·446	82·1	87·9	−1·3	78·7	−0·3	83·3	−0·8	9·2	92·5	14th	75·2	1st	17·3
		Calcutta	21	29·554	−·015	29·521	29·739	6th	29·262	16th	·477	82·1	88·2	+0·2	78·3	−0·2	83·2	0	9·9	93·2	2 days	75·1	23rd & 30th.	18·1
		Saugor Island	25	29·546	−·017	29·515	29·724	4th	29·263	16th	·461	83·3	88·2	+0·4	80·7	+0·1	81·4	+0·3	7·5	91·4	2 days	76·6	4th	14·8
		Krishnagar	47	29·530		29·525	29·733	6th	29·254	16th	·479	81·7	88·8		78·0		83·5		10·3	93·3	14th	74·2	30th	19·1
		Midnapore	149	29·419		29·514	29·588	6th	29·102	16th	·486	82·0	89·4		78·1		83·7		11·3	94·3	3rd, 4th & 13th.	74·7	30th	19·6

* Observations of 29 days. † Mean of 30 days.

I.

Stations in India, Burma, etc., in July, 1902.

Wind Direction, Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity: Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M.: Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall: Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May, 1902, to 31st July, 1902.	Normal rainfall for period, 1st May to 31st July.	Variation from normal of period, 1st May to 31st July, 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				29·40	31·41	+0·05					I.—Burma Coast and Bay Islands.		
1						9	2		S 53° W	4·2	4·2			90	·894	9·4	11			10·65			10·65‡			2·60	Car Nicobars§	Tenasserim and Bay Islands.	1
				5	4	11	11		S 45° W	12·0	13·4	11·0	+22	84	·937	6·4	15			9·01	15·68	− 6·67	47·72	51·42	− 3·70	2·59	Port Blair		
15	4	1		1	4	4		2	S 63° W	2·1	1·9	1·8	+ 6	90	·893	5·8	16	25·60	−9·60	16·52	31·50	−14·98	64·45	81·05	−16·60	3·93	Mergui.		
31									Calm.	2·2				93	·880	6·9	24	28·00	−4·00	43·29	46·83	− 3·54	110·77	112·76	− 1·99	6·50	Tavoy.		
2	2		1		8	15		3	S 39° W	3·5	3·9	3·8	+ 3	91	·855	8·3	27	28·20	−1·20	41·72	45·96	− 4·24	96·62	101·74	− 5·12	3·60	Moulmein.		
		1	2	5	13	8	2		S 4° W	8·2	6·9	5·5	+25	91	·897	9·0	24	25·70	−1·70	24·30	20·98	+ 3·32	24·30‡	49·72	?	3·27	Rangoon	Lower Burma	2
3				14	5	8	1		S 9° W	5·1		4·0	+28	94	·918	8·5	27	26·80	+0·20	30·12	25·46	+ 4·66	64·85	59·18	+ 5·67	2·56	Bassein.		
1				4	3	15	8		S 44° W	15·3	15·3	8·9	+72	84	·932	8·1	25	24·00	+1·00	18·36	25·80	− 7·44	51·01	59·40	− 8·39	3·37	Diamond Island.		
				5	22	4			S 1° E	3·3	3·2	3·8	−16	95	·970	8·9	29	27·80	+1·20	83·95	52·62	+31·33	134·33	109·28	+25·04	10·05	Akyab	Arakan	5
2				19	5	5			S 24° E	6·9	6·8	4·8	+42	90	·917	9·1	24	25·00	−1·00	16·08	17·89	− 1·81	34·40	38·32	− 3·92	1·78	Toungoo	Central Burma.	3
																				8·63	8·31	+0·32					II.—Burma Inland.		
				9	20	2			S 10° E	8·0		6·7	+19	87	·894	6·9	20	15·20	+4·80	10·30	6·87	+ 3·43	18·18	17·34	+ 0·84	1·60	Thayetmyo	Central Burma.	3
3				25	3				S 41° E	8·7	10·4			85	·891	7·8	12	8·80	+3·20	4·11	4·34	− 0·23	9·23	14·89	− 5·66	0·85	Minbu	Upper Burma	4
2				14	15				S 22° E	9·0	9·5			85	·852	9·2	11	9·60	+1·40	5·36	4·12	+ 1·24	13·27	15·14	− 1·87	1·21	Yamethin.		
	1		1	2	17	9		1	S 11° W	8·1	8·2			78	·838	4·9	6	6·20	−0·20	4·83	3·05	+ 1·78	12·07	14·39	− 2·32	2·08	Mandalay.		
28					3				S	0·5	0·5			90	·922	9·8	16	15·80	+0·20	8·83	12·45	− 3·62	22·88	31·72	− 8·84	3·35	Kindat.		
7	1	5	1	1	2	5	1	6	N 54° W	1·9	2·2			94	·906	8·3	16	21·50	−5·50	18·36	19·01	− 0·65	45·15	39·19	+ 5·96	4·04	Bhamo.		
13					1	16	1		S 45° W	5·9				85	·646	7·1	11	12·10	−1·10	6·96	7·97	− 1·01	23·33	25·56	− 2·23	1·56	Maymyo.	Burma Hill Stations.	4(a)
	1	2	1		9	17	1		S 30° W	4·7				85	·702	9·3	15			9·61	14·71	− 5·10	26·04	31·54	− 5·50	1·95	Lashio.		
																				16·24	17·01	−2·03					III.—Assam.		
31									Calm.	1·4	2·4	3·1	−23	88	·966	8·9	23	22·50	+0·50	14·01	18·43	− 4·42	53·40	57·66	− 4·26	2·61	Silchar	Surma.	7
9	1	3	1		1	11			S 27° W	3·1	2·8	2·8	0	94	·961	9·2	22	19·20	+2·80	14·24	17·12	− 2·88	29·02	43·33	−14·31	1·85	Sibsagar	Brahmaputra	9
	2	5	12	2	6	4			S 72° E	4·7	5·5	3·9	+41	90	·855	7·3	16	15·80	+0·20	16·69	15·49	+ 1·20	61·10	54·09	+ 7·01	3·27	Dhubri.		
														88	.941	8·6	18	14·80	+3·20	9·15			21·02			1·37	Gauhati.		
5	1	8	7	1	2	4	3		N 74° E	2·9	3·1			91	·925	8·5	17	17·20	−0·20	14·54			36·06			5·00	Tezpur.		
	6	4	3	3	3	3	3	6	N 14° W	2·2	2·1			91	·892	7·1	22	20·40	+1·60	28·78			57·46			6·48	Dibrugarh.		
																				18·14	14·56	+3·58					IV.—Bengal and Orissa.		
		1	3	16	10	1			S 34° E	9·6	9·5	7·2	+32	89	·908	8·3	22	19·45	+2·55	35·57	19·94	+15·63	76·19	52·01	+24·18	5·03	Chittagong	East Bengal	5
		2	5	10	10	4			S 30° E	6·4	5·9			90	·948	6·4	25	22·81	+2·19	40·14	22·10	+18·04	81·30	55·45	+25·85	6·65	Noakhali.		
4			1	11	15				S 21° E	3·6				90	·927	7·8	18	19·07	−1·07	11·08	17·05	− 5·97	42·52	45·97	− 3·45	1·70	Comilla.		
8		4	8	5	5	1			S 67° E	2·9	3·0			93	·965	8·3	22	14·26	+7·74	11·13	11·30	− 0·17	41·01	30·82	+10·19	1·32	Sirajganj.		
		1	6	11	10	3			S 32° E	9·1		7·3	+25	91	·990	9·0	17	17·73	−0·78	13·64	12·31	+ 1·33	41·92	34·39	+ 7·53	3·08	Narayanganj.		
1		2		8	13	5	2		S 5° E	3·9				90	·978	8·2	23	20·33	+2·42	24·99	15·02	+ 9·97	67·20	39·23	+27·97	5·65	Barisal.		
10			6	10	3	2			S 45° E	4·1	3·7			90	·963	7·6	20	19·35	+0·35	17·50	15·33	+ 2·17	63·38	45·63	+17·75	4·10	Mymensingh.		
4		4	12	8	2	1			S 29° E	5·5	4·6			90	·982	5·8	21	17·13	+3·87	15·72	12·47	+ 1·25	44·25	33·52	+10·73	2·39	Faridpur	Deltaic Bengal	10
14		2	9	5	1				S 34° E	1·8	1·8	4·6	−61	90	·991	8·6	22	17·52	+4·48	15·25	12·02	+ 3·23	35·59	32·52	+ 3·07	1·84	Jessore.		
4		2	2	4	8	10	1		S 7° W	5·5		5·3	+ 4	86	·973	9·0	16	18·95	−2·95	15·52	12·27	+ 3·25	30·18	29·30	+ 0·88	3·39	Calcutta.		
		2	2	2	9	13	2	1	S 21° W	20·5		14·2	+43	87	·998	8·7	17	16·74	+0·26	22·71	15·95	+ 6·79	32·61	31·06	+ 1·55	7·38	Saugor Island		
1		1	3	11	10	3	2		S 20° E	4·1	4·5			90	·979	8·6	17	15·87	+1·13	9·51	10·36	− 0·85	21·31	26·79	− 5·48	1·57	Krishnagar.		
2	2	3		4	14	6			S 3° E	4·4	3·9			89	·974	5·5	20	15·95	+4·05	13·09	12·56	+ 0·53	25·46	28·76	−3·30	2·67	Midnapore.		

‡ Rainfall from 1st July 1902. § Wind variable 19

Table

Abstract of Observations taken at 8 A.M. at 227

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal	Bankura	298	29·242		29·488	29·431	6th	28·920	16th	·511	81·7	90·5		78·5		84·5		12·0	95·6	11th	74·9	30th	20·7
		Raniganj	334	29·227		29·508	29·426	6th	28·928	16th	·498	80·9	89·9		78·0		84·0		11·9	95·2	11th	74·9	30th	20·3
		Burdwan	99	29·468	−·021	29·514	29·659	6th	29·168	16th	·491	82·0	89·8	−0·4	78·7	−0·7	84·3	−0·6	11·1	96·4	13th	75·8	3 days	20·6
		Naya Dumka	489	29·072		29·516	29·290	6th	28·804	16th	·486	81·0	88·5		77·8		83·2		10·7	94·0	10th	74·4	30th	19·6
		Berhampore*	67	29·504	−·025	29·519	29·715	6th	29·255	16th	·460	82·1	89·4	0	78·6	−0·2	84·0	−0·1	10·8	94·3	2 days	75·3	2 days	19·0
		Rampur Boalia.	70	29·514		29·533	29·722	6th	29·275	16th	·447	82·0	87·9		78·7		83·4		9·2	93·1	26th	74·1	4th	19·0
		Malda	72	29·479		29·502	29·701	6th	29·281	16th	·420	81·4	89·0		78·5		83·7		10·5	93·6	16th	74·0	6th	19·6
		Bogra	61	29·522	−·012	29·535	29·731	6th	29·323	15th	·408	81·3	88·3	−0·8	78·3	−0·2	83·4	−0·5	10·0	92·2	2 days	73·2	1st	19·0
12	North Bengal	Dinajpur	123	29·446	−·030	29·523	29·665	6th	29·248	15th	·417	80·5	88·6	−0·5	78·1	−0·8	83·4	−0·7	10·5	94·3	16th	74·5	3 days	19·8
		Rangpur	123	29·490		29·567	29·700	6th	29·291	15th	·409	81·2	89·0		78·4†		83·8†		10·6	95·2	15th	73·8	12th	21·4
		Jalpaiguri	284	29·324	−·006	29·565	29·536	6th	29·128	15th	·408	79·9	87·6	−0·6	77·1	+0·3	82·4	−0·2	10·5	93·9	15th	72·6	3rd	21·3
		Cooch Behar	156	29·457		29·567	29·672	6th	29·251	15th	·422	80·3	88·4		77·9		83·2		10·5	94·4	16th	75·1	12th	19·3
17	North Bihar	Purnea	125	29·447	−·022	29·525	29·675	6th	29·267	16th	·408	81·6	89·8	−0·2	78·8	+0·1	84·2	−0·1	11·0	94·2	16th	75·2	1st	19·0
14	Orissa	Balasore	48	29·536	−·004	29·528	29·682	6th	29·233	16th	·449	81·5	89·2	+0·7	77·9	−0·5	83·6	+0·1	11·3	95·9	1st	71·4	1st	24·5
		False Point.	21	29·580	−·007	29·543	29·700	5th	29·340	16th	·360	82·8	87·4	−0·2	78·9	+0·3	83·2	+0·1	8·5	92·0	12th	73·1	1st	18·9
		Cuttack	80	29·517	−·004	29·539	29·635	5th	29·292	16th	·343	81·2	90·4	+0·6	78·1	−0·5	84·3	+0·1	12·3	98·9	1st	74·2	1st	24·7
		Puri	24	29·585		29·547	29·690	5th & 23rd	29·359	16th	·331	82·1	86·3		78·5		82·4		7·8	90·7	10th & 11th	72·6	1st	18·1
	V.– Gangetic Plain and Chota Nagpur.				−·026								91·0	+0·8	78·1	−0·4	84·6	+0·2	12·9					31·2
15	Chota Nagpur	Hazaribagh.	2,007	27·565	−·029	29·503	27·730	6th	27·324	16th	·406	77·2	86·6	+2·0	74·2	+0·5	80·5	+1·3	12·4	100·7	1st	72·3	5th, 19th & 26th.	28·4
		Ranchi	2,128	27·418	−·024	29·505	27·612	6th	27·192	16th	·420	75·8	85·3	+1·3	73·2	+0·3	79·3	+0·8	12·1	101·2	1st	68·9	6th	32·3
		Daltonganj	730?	28·813		29·493	28·960	6th	28·603	16th	·357	81·2	91·9		78·7		85·2		13·2	110·1	1st	75·0	26th	35·1
		Purulia		28·733		29·488	28·917	6th	28·405	16th	·512	81·0	90·2		76·1		83·2		14·1	99·1	1st	71·9	6th	27·2
		Chaibassa	760	28·796	−·015	29·500	28·951	6th	28·481	16th	·470	80·3	88·7	−0·9	77·1	−0·4	82·9	−0·7	11·6	103·7	1st	75·0	6th, 29th & 30th.	28·7
16	South Bihar	Gaya	375	29·162	−·032	29·487	29·345	6th	28·961	16th	·384	82·9	93·6	+2·2	78·6	−0·2	86·1	+1·0	15·0	107·3	1st	73·8	26th	33·5
		Dehri	351	29·179		29·482	29·343	2nd	29·014	17th	·329	82·6	91·9		78·7		85·3		13·2	109·4	1st	67·0	5th	42·4
		Patna	183	29·362	−·028	29·496	29·553	6th	29·191	16th	·362	82·7	91·4	+1·3	79·3	−0·5	85·7	+0·4	12·1	98·0	2nd	76·2	3 days	21·8
		Arrah	190	29·363		29·502	29·550	6th	29·191	16th	·359	82·8	91·9		79·0		85·5		12·9	101·5	1st	74·1	2nd & 3rd.	27·4
		Buxar	239	29·289		29·481	29·454	6th	29·107	17th	·347	81·9	90·8		78·1		84·4		12·7	106·5	1st	72·6	2nd	33·9
1	North Bihar	Bhagalpur	160	29·396		29·508	29·613	6th	29·197	16th	·416	82·9	90·4		78·6		84·6		11·6	95·7	2nd	74·6	12th	21·1
		Darbhanga	166	29·390	−·026	29·509	29·607	6th	29·227	16th	·380	82·3	89·6	+0·1	79·7	−0·1	84·7	0	9·9	96·3	15th & 16th.	77·0	5th & 6th.	19·3
		Muzaffarpur	178	29·380		29·511	29·589	6th	29·208	16th	·381	82·4	89·5		78·8		84·2		10·7	96·2	16th	74·7	6th	21·5
		Motihari	224	29·331		29·512	29·557	6th	29·168	15th	·389	81·3	90·5		78·0		84·2		12·5	97·9	16th	72·8	2nd, 3rd & 6th.	25·1
		Chapra	181	29·359		29·492	29·552	6th	29·191	16th	·361	82·6	92·9		79·3		86·1		13·6	100·4	16th	74·1	2nd	26·3
18	United Provinces (East).	Benares	267	29·252	−·035	29·475	29·419	7th	29·053	17th	·366	82·2	91·9	+0·7	77·9	−1·7	84·9	−0·5	14·0	111·8	1st	74·2	26th	37·6
		Allahabad	309	29·225	−·020	29·486	29·381	6th	29·022	17th	·359	82·8	92·6	+1·0	79·2	−0·2	85·9	+0·4	13·4	113·7	1st	72·8	27th	40·9
22	United Provinces (East Submontane).	Gorakhpur	257	29·290	−·014	29·503	29·453	6th	29·147	15th	·306	80·9	90·7	−0·4	78·2	−1·2	84·5	−0·8	12·5	104·1	1st	73·0	2nd & 7th.	31·1
19	South Oudh	Lucknow	368	29·149	−·034	29·471	29·296	4th	29·009	16th & 17th.	·287	82·9	92·4	+0·2	78·3	−1·0	85·4	−0·4	14·1	113·8	1st	74·3	28th	39·5
20	North Oudh	Bahraich	401	29·134	−·022	29·494	29·282	4th	28·981	16th	·301	82·6	92·6	+1·3	78·3§	−0·5§	85·2§	+0·4§	14·3§	111·7	1st	70·0	13th	41·7
21	United Provinces (Central).	Cawnpore	416	29·098	−·023	29·464	29·242	2nd	28·944	17th & 18th.	·298	82·5	92·7	+0·2	79·2	−0·4	86·0	−0·1	13·5	112·6	1st	76·0	19th	36·6
		Mainpuri	516	28·991	−·036	29·460	29·117	7th	28·840	18th	·277	83·1	93·7	+1·0	79·1	−0·4	86·4	+0·3	14·6	110·2	2nd	75·5	7th & 8th.	34·7

* Observation of 30 days.

† Mean of 23 days.

I—*continued.*

Stations in India, Burma, etc., in July, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry. A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May 1902 to 31st July 1902.	Normal rainfall for period, 1st May to 31st July.	Variation from normal of period, 1st May to 31st July 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
18			4	6			3		S 51° E	3·5	4·0			88	·950	8·1	11	16·46	−5·46	13·62	12·87	+0·75	24·73	27·08	− 2·35	4·53	Bankura	Central Bengal.	11
23		1	3	2	1	1			S 63° E	1·5				91	·961	6·7	18	16·39	+1·61	12·59	14·15	−1·56	23·67	27·85	− 4·18	1·60	Raniganj.		
2		3	3	5	7	9	1	1	S 4° E	4·4	4·3	4·3	0	89	·975	9·0	12	16·10	−4·10	9·59	12·48	−2·89	23·03	28·75	− 5·72	2·47	Burdwan.		
8		2	7	5	5	2	1	1	S 48° E	3·9	4·3			89	·948	9·5	18	18·72	−0·72	15·64	14·14	+1·50	23·16	27·70	− 4·54	3·71	Naya Dumka		
1			8	4	12	5			S 21° E	3·8	4·0	5·0	−20	91	·004	8·9	17	15·71	+1·29	16·07	10·51	+5·56	24·46	25·46	− 1·00	3·57	Berhampore.		
14		2	1	5	6	2	1		S 22° E	2·7	2·8			89	·977	6·6	20	15·15	+4·85	16·28	11·46	+4·82	35·48	27·70	+ 7·78	3·14	Rampur Boalia.		
		2	12	10	4	3			S 56° E	2·8	2·5			91	·973	7·8	15	15·45	−0·45	10·28	11·07	−0·79	23·13	24·81	− 1·68	2·60	Malda.		
5			20	2	4				S 77° E	5·6	6·7			89	·953	7·8	21	15·94	+5·06	13·98	12·64	+1·34	39·88	33·58	+ 6·30	4·70	Bogra.		
	1	4	10	8	6	2			S 62° E	5·0	4·8			91	·949	9·1	19	16·36	+2·64	21·64	14·38	+7·26	43·00	36·00	+ 7·00	5·90	Dinajpur	North Bengal	12
7			14	2	8				S 59° E	3·4	3·6			90	·962	5·8	21	15·42	+5·58	16·43	16·01	+0·42	42·66	46·33	− 3·67	2·52	Rangpur.		
2	4	7	12	4	1	1			N 78° E	1·7	2·2			92	·933	3·8	26	20·16	+5·84	28·04	33·38	−5·34	69·74	68·28	+ 1·46	2·98	Jalpaiguri.		
12		1	16	1	1				S 17° E	1·6	1·6			91	·916	8·3	22	18·79	+3·21	38·68	25·58	+13·10	83·12	72·99	+10·13	9·03	Cooch Behar.		
3	1	7	4	15		1			S 75° E	4·7	4·1	2·9	+41	90	·970	6·5	15	17·13	−2·13	9·29	14·56	−5·27	22·67	29·35	− 6·68	1·57	Purnea	North Bihar	17
6	1	1			5	17	1		S 39° W	5·4				84	·968	6·5	20	14·94	+5·06	18·00	11·68	+6·32	26·97	28·97	− 2·00	2·76	Balasore	Orissa	14
1				2	2	17	8	1	S 52° W	12·1	11·6	10·5	+10	86	·967	8·7	15	14·10	+0·10	15·64	11·89	+3·75	22·02	25·42	− 3·40	4·26	False Point.		
7	1		1		1	13	7	1	S 61° W	3·4		3·2	+ 6	85	·907	7·9	19	16·13	+2·87	25·33	11·46	+13·87	35·81	26·52	+ 9·29	7·51	Cuttack.		
4	2	1			1	22	1		S 49° W	14·8	13·9			87	·965	7·1	13	11·74	+1·26	19·34	9·96	+9·38	23·40‡	17·95‡	+ 5·45	4·94	Puri.		
																				14·48	12·30	+2·18					V.—Gangetic Plain and Chota Nagpur.		
1	2		1	1	9	8	7	2	S 45° W	9·7	8·6	8·4	+ 2	83	·783	10·0	22	18·74	+3·26	14·14	14·41	−0·27	20·22	25·85	− 5·63	2·41	Hazaribagh	Chota Nagpur	15
1	2		1	1	5	13	3	5	S 57° W	8·4	9·9			89	·795	8·9	17	19·10	−2·10	16·01	15·81	+0·20	21·38	28·25	− 6·87	2·95	Ranchi.		
25	2	1	2			1			N 45° E	2·6	3·1			84	·891	5·4	15	16·16	−1·16	9·80	12·51	−2·71	10·29	19·65	− 9·36	1·92	Daltonganj.		
15		1	2	3		3	6	1	S 53° W	1·8	2·2			86	·907	6·2	15	17·42	−2·42	11·95	12·23	−0·28	9·87	25·22	−15·35	4·01	Purulia.		
8			1	1	1	8	11	1	S 66° W	2·1	1·8			86	·890	6·5	18	16·68	+1·32	20·73	12·34	+8·39	32·65	25·19	+ 7·46	4·35	Chaibassa.		
6		2	7	5	2	3	5	1	S 34° E	3·5	2·9	2·9	0	84	·944	6·8	18	15·68	+2·32	16·77	13·67	+3·10	19·30	22·08	− 2·78	2·96	Gaya	South Bihar	16
6	1	1	4	9	3	5	1	1	S 29° E	6·9	6·2			83	·925	7·9	18	14·72	+3·28	16·10	11·64	+4·46	22·36	18·99	+ 3·37	3·55	Dehri.		
	1	2	14	7		3		4	S 82° E	7·2	8·1	3·6	+125	88	·982	8·2	14	14·16	−0·16	10·62	12·66	−2·04	13·89	23·13	− 9·24	1·92	Patna.		
8	3	7	2	4	3	1		3	N 60° E	3·3	3·4			86	·961	6·7	19	15·13	+3·87	16·12	13·35	+2·77	19·46	21·77	− 2·31	2·18	Arrah.		
			19	3	1	2	6		S 70° E	13·7	12·4			87	·945	7·9	18	14·39	+3·61	14·30	11·78	+2·52	15·04	18·04	− 3·00	3·61	Buxar.		
3		3	8	11	1	1	4		S 62° E	4·6	4·3			85	·955	8·7	16	15·39	+0·61	12·78	12·22	+0·56	19·15	23·29	− 4·14	2·49	Bhagalpur	North Bihar	17
7			12	10			1	1	S 71° E	3·8		5·0	−24	89	·984	6·8	17	14·37	+2·63	14·58	11·81	+2·77	23·90	23·02	+ 0·88	2·70	Darbhanga.		
10		1	10	9				1	S 73° E	5·3				89	·989	5·4	16	14·39	+1·61	15·85	11·90	+3·95	19·08	21·55	− 2·47	2·33	Muzaffarpur.		
		7	17	2	2	2		1	N 87° E	6·5	6·2			88	·939	6·1	13	12·48	+0·52	22·70	12·49	+10·21	32·00	24·04	+ 7·96	4·79	Motihari.		
7	1		14	3	1		4	1	S 85° E	3·8	3·4			85	·949	8·9	14	14·23	−0·23	5·65	11·29	−5·64	9·76	19·04	− 9·28	0·93	Chapra.		
7	1	2	6	4	3	6	2		S 28° E	3·6	4·1	4·8	−15	85	·939	8·6	16	14·60	+1·40	14·49	11·45	+3·04	15·70	18·32	− 2·62	2·82	Benares	United Provinces (East).	18
1	1	5	5	3	4	4	5	3	S 17° E	6·8	7·8	6·3	+24	85	·945	8·8	19	13·30	+5·70	18·72	12·15	+6·57	20·53	18·86	+ 1·67	4·76	Allahabad.		
4	4	12	5	3	1			2	N 64° E	2·3		2·8	−18	93	·972	9·7	16	14·70	+1·30	23·68	13·75	+9·93	25·89	24·18	+ 1·71	3·74	Gorakhpur	United Provinces (East Submontane).	23
3	1	4	10	5	2	2	1	3	S 85° E	4·2	4·6	3·9	+18	84	·948	6·7	16	14·10	+1·90	14·17	11·53	+2·64	16·13	18·25	− 2·12	4·15	Lucknow	South Oudh	19
9			14	4	1			3	S 83° E	4·7	4·4			83	·960	6·1	13	12·80	+0·20	13·62	11·86	+2·76	16·81	20·34	− 3·53	2·74	Bahraich	North Oudh	20
9	1	6	6	2	1	2	4		N 78° E	5·3				85	·947	8·3	19	12·10	+6·90	6·11	10·96	−4·85	6·95	15·36	− 8·41	0·87	Cawnpore	United Provinces (Central).	21
17	2		8	1		1	2		N 84° E	1·0	1·0			80	·839	7·9	16	10·20	+5·80	8·62	8·75	−0·13	8·98	13·91	− 4·93	0·96	Mainpuri.		

‡ Total rainfall for June and July. § Mean of 22 days.

Table

Abstract of Observations taken at 8 A.M. at 227

Number of District.	Meteorological Province or District.	Station.	Elevation of barometern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas				−·019								94·3	−0·3	78·4	−0·5	86·4	−0·4	16·0					35·8
24	United Provinces (West Submontane).	Bareilly	568	28·962	−·017	29·490	29·114	6th	28·835	12th	·279	81·2	91·0	−0·6	78·2	−0·5	84·6	−0·6	12·8	109·5	1st	73·6	7th & 13th.	35·9
		Dehra Dun	2,233	27·350	−·026	29·513	27·483	4th	27·221	25th	·262	76·0	85·4	−0·1	72·5	−1·6	79·9	−0·9	12·9	99·0	1st	65·0	28th	34·0
		Roorkee	899	28·636	−·017	29·496	28·777	7th	28·495	12th	·282	80·5	90·1	−2·0	76·9	−1·3	83·5	−1·7	13·2	103·7	1st	72·1	8th	31·6
22	United Provinces (West).	Meerut	738	28·770	−·033	29·467	28·907	4th & 7th.	28·622	12th	·285	81·4	91·3	−1·5	78·5	−0·9	84·9	−1·2	12·8	105·2	1st	73·8	7th & 8th.	31·4
26	South-East Punjab.	Delhi	718	28·800	−·022	29·474	28·930	4th	28·654	12th	·276	83·4	92·0	−2·0	80·2	−0·5	86·1	−1·3	11·8	107·2	1st	75·0	7th	32·2
28	Central Punjab.	Lahore	702	28·756	−·012	29·456	28·978	6th	28·613	12th	·365	85·9	101·4	+0·8	81·5	+2·1	91·5	+1·5	19·9	112·9	13th	69·9	27th	43·0
27	South Punjab	Sirsa	662	28·835	−·022	29·448	28·977	7th	28·674	16th	·303	88·1	101·6	+1·1	82·0	+0·2	91·8	+0·7	19·6	110·8	13th	76·1	28th	34·7
		Patiala	818	28·702		29·477	28·856	7th	28·545	26th	·311	83·7	93·4		78·2		85·8		15·2	106·0	1 t	70·9	7th	35·1
29	Punjab (Submontane).	Ludhiana	812	28·698	−·021	29·467	28·863	7th	28·539	12th	·324	84·6	96·9	−0·1	80·2	−0·1	88·6	−0·1	16·7	109·4	1st	71·1	27th	38·3
		Sialkot	830	28·675	−·010	29·469	28·843	6th	28·496	16th	·347	84·8	99·3	+1·7	79·6	+0·1	89·5	+0·9	19·7	110·8	1st	73·1	7th & 9th.	37·7
		Umballa	892	28·633	−·012	29·484	28·794	7th	28·486	26th	·308	81·7	92·6	−0·7	76·2*	−2·5*	84·0*	−1·6	16·4*	108·5	1st	71·0	3rd	37·5
31	North Punjab	Rawalpindi	1,674	27·858	−·013	29·480	28·044	6th	27·691	12th	·353	82·9	96·7	−0·6	76·5	−0·2	86·6	−0·4	20·2	106·0	1st	67·6	4th & 5th.	38·4
	VII.—North-West Frontier Province Indus Valley and North-West Rajputana.				−·023								103·4	+2·2	83·4	+1·5	93·4	+1·8	20·0					36·3
31	North Punjab	Peshawar	1,110	28·405	−·009	29·474	28·583	6th	28·217	12th	·366	87·2	103·3	+0·4	79·9	−0·4	91·2	0	24·3	113·0	1st	68·9	8th	44·1
32	West Punjab	Khushab	612	28·890	?	29·462	29·104	6th	28·702	13h	·402	87·2	102·5	−0·1	81·8	−0·3	92·2	−0·2	20·7	112·4	13th	71·4	8th	41·0
		Montgomery	558	28·910	−·013	29·421	29·147	6th	28·729	12th	·418	90·4	101·5	−0·2	84·6	+0·7	94·6	+0·3	19·9	113·0	13th	73·5	6th	39·5
		D. I. Khan	590	28·902	−·010	29·430	29·122	6th	28·714	13th	·408	88·5	103·0	−0·4	83·4	+0·9	93·2	+0·3	19·6	113·7	13th	75·6	2nd	38·1
		Mooltan	420	29·052	−·028	29·410	29·245	6th	28·845	12th	·400	89·8	105·3	+1·5	85·9	+2·2	95·6	+1·9	19·4	112·9	13th	75·0	4th & 6th	37·9
47	Sind	Jacobabad	186	29·251	−·037	29·393	29·394	4th	29·080	26th	·314	91·5	111·7	+3·9	87·4	+3·1	99·6	+3·5	24·3	121·0	13th	83·5	1st	37·5
		Hyderabad	96	29·388	−·027	29·435	29·519	4th	29·244	16th	·275	86·5	101·7	+2·8	82·6	+1·8?	92·2	+2·3?	19·1	110·7	12th	75·0	7th	35·7
		Kurrachee	30	29·505	−·022	29·489	29·637	30th	29·381	16th	·256	86·4	94·8	+4·2	82·8	+2·2	88·8	+3·2	12·0	104·9	9th	79·2	11th & 27th.	25·7
51	West Rajputana	Bikaner	771	28·721	−·035	29·443	28·823	4th	28·571	16th	·252	89·5	103·8	+3·4	84·6	+1·8	91·2	+2·6	19·2	110·0	13th	73·5	19th	36·5
		Pachpadra	380	29·102	?	29·491	29·190	1st	29·017	16th	·243	87·8	104·4	+6·8	82·7	+3·0	93·6	+4·9	21·7	111·5	12th	79·9	26th	31·6
		Jodhpur	782	28·754		29·502	28·869	1st	28·614	16th	·255	86·6	102·5		82·5		92·5		20·0	107·2	5th, 11th & 12th.	75·3	18th	31·9
	VIII.—East Rajputana, Central India and Gujarat.				−·029								93·7	+4·0	79·3	+1·8	86·5	+2·9	14·5					30·0
50	East Rajputana	Jaipur	1,431	28·132	−·018	29·504	28·237	1st	27·984	16th	·253	83·3	96·0	+2·5	78·7	+0·5	87·4	+1·5	17·3	107·2	13th	73·1	14th & 19th.	34·1
		Bharutpur	585	28·943		29·485	29·050	4th	28·792	16th	·258	82·8	94·4		79·0		86·7		15·4	108·4	1st	72·2	13th	36·2
		Kotah	819	28·747		29·516	28·825	1st	28·565	16th	·260	84·1	95·8		80·2		88·0		15·6	106·0	12th & 13th.	74·6	3rd & 19th.	31·4
		Sambhar	1,254	28·298	−·010	29·497	28·399	1st	28·149	16th	·250	84·1	97·2	+2·9	80·0	+0·8	88·6	+1·9	17·2	105·5	12th & 13th.	71·9	14th	33·6
		Ajmer	1,611	27·955	−·027	29·504	28·052	1st	27·813	16th	·239	83·4	94·9	+3·6	80·6	+2·3	87·8	+3·5	14·3	104·4	13th	74·1	19th	30·3
		Udaipur	1,925	27·678		29·530	27·786	1st	27·554	16th	·232	81·6	92·4		77·0		84·7		15·4	100·0	12th	70·3	18th	29·7
		Deesa	466	29·114	−·022	29·528	29·235	1st	28·991	16th	·244	85·5	101·3	+9·6	81·3	+3·7	91·3	+6·7	20·0	111·1	8th	73·0	31st	38·1
46	Kathiawar and Cutch.	Bhuj	395	29·176	−·021	29·518	29·271	20th & 21st.	29·060	16th	·211	85·3	95·9	+5·9	80·3	+2·2	88·1	+4·1	15·6	104·3	6th	76·9	7th	27·4
		Jamnagar	61	29·533		29·540	29·636	23rd	29·421	8th	·215	85·6	96·0		80·7		88·3		15·3	101·6	1st	77·7	7th	23·9
		Rajkot	429	29·173	−·025	29·550	29·284	20th	29·011	9th	·273	83·3	96·2	+5·6	78·5	+2·7	87·4	+4·2	17·7	104·4	8th	75·2	10th	29·2
		Veraval	8	29·602	−·036	29·562	29·735	23 rd	29·401	8th	·334	82·9	85·3	+1·6	80·9	+1·7	83·1	+1·7	4·4	92·6	8th	75·8	9th & 10th.	16·8
		Dwarka	37	29·555		29·537	29·656	21st	29·444	10th	·212	84·0	87·8		80·8	†	84·3		7·0	90·9	7th	73·2	7th	17·7
		Bhavnagar Para.	55	29·567	?	29·568	29·695	2 3rd	29·355	9th	·340	84·6	96·0	+2·6	79·4†	+0·6?	87·9†	+1·6†	16·6	103·6	6th	76·3	17th & 26th.	27·3
49	Central India	Nowgong	757	28·767	−·044	29·476	28·929	1st	28·571	18th	·358	81·1	89·8	−0·1?	77·9	−0·2	83·9	−0·2?	11·9	110·0	1st	74·0	19th & 28th.	36·0
		Indore	1,823	27·807	?	29·566	27·927	1st	27·670	16th	·257	77·7	88·6	+4·1	74·1	+1·5	81·4	+2·8	14·5	97·8	4th	69·1	18th	28·7
		Neemuch	1,630	27·963	−·024	29·535	28·068	1st	27·841	16th	·227	79·9	91·3	+3·9	76·0	+1·9	83·7	+2·9	15·3	103·0	5th, 6th & 7th.	69·5	18th	33·5

* Mean of 20 days.

† Mean of 30 days.

I—*continued.*

Stations in India, Burma, etc., in July, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May 1902 to 31st July 1902.	Normal rainfall for period, 1st May to 31st July.	Variation from normal of period, 1st May to 31st July 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				8·76	10·73	−1·61					VI.—Upper Sub-Himalayas.		
19	1		5	2		1		2	N 74° E	1·9	1·8	4·1	− 56	91	·954	5·5	17	13·45	+ 3·55	15·06	15·47	−0·41	17·85	22·19	− 4·34	3·00	Bareilly .	United Provinces (West Sub-montane).	24
9		2		4	4	2	4	6	S 04° W	1·6		1·2	+ 33	87	·783	8·1	18	21·20	− 3·20	18·85	28·58	−9·73	23·54	40·53	−16·99	2·07	Dehra Dun.		
15				13	1			2	S 42° E	2·5		2·9	− 14	83	·865	7·3	15	11·90	+ 3·10	11·61	12·61	−1·00	20·42	18·74	+ 1·68	1·85	Roorkee.		
17	1	4	5	2			2		N 72° E	1·3	1·2	2·3	− 43	83	·891	8·0	13	9·40	+ 3·60	11·17	9·35	+1·82	17·48	13·44	+ 4·04	2·82	Meerut. .	United Provinces (West).	22
5		2	9	6		4	4	1	S 55° E	4·9	4·5	4·5	0	79	·893	7·0	7	9·20	− 2·20	10·17	8·48	+1·69	16·96	12·61	+ 4·35	3·13	Delhi . .	South-East Punjab.	26
2	3	3	4	12	2	2	1	2	S 64° E	4·3		3·3	− 33	70	·872	3·4	3	3·30	− 0·30	2·59	5·96	−3·37	4·24	8·87	− 4·63	2·05	Lahore .	Central Punjab	28
	3	7	3	6	3	3	4	2	E	7·8	7·1	4·8	− 48	65	·846	1·1	4	5·00	− 1·00	0·60	4·14	−3·54	4·15	6·64	− 2·49	0·21	Sirsa .	South Punjab .	27
																				4·75			7·57			0·87	Patiala.		
3		2	7	13	2	3	1		S 51° E	6·0	6·1			80	·921	5·8	8												
7		1	4	16	1	2			S 52° E	3·9	3·5	2·0	+ 75	73	·863	4·2	7	7·60	− 0·60	6·10	9·27	−3·17	9·96	12·90	− 2·94	2·15	Ludhiana .	Punjab (Submontane).	29
12	1	3	8	3	1			3	N 79° E	2·2		2·5	− 12	71	·831	3·5	8	9·00	− 1·00	6·99	8·01	−1·02	12·60	12·12	+ 0·48	2·13	Sialkot.		
19		1	2	9					S 58° E	1·9				86	·929	6·4	11	9·80	+ 1·20	12·21	7·65	+4·56	16·41	14·67	+ 1·74	3·40	Umballa.		
13	3	7	2	2	2			2	N 49° E	2·8	2·6	2·1	+ 24	67	·758	4·3	7	9·10	− 2·10	5·03	8·53	−3·50	11·67	12·01	− 0·34	1·61	Rawalpindi.	North Punjab .	31
																				0·77	3·02	−2·25					VII.—North-West Frontier Province, Indus Valley and North-West Rajputana.		
13	7	2	1	1			2	5	N 9° W	2·7	2·9	4·4	− 34	59	·761	2·5	3	2·10	+ 0·80	0·78	1·66	−0·88	1·40	2·71	− 1·31	0·45	Peshawar .	North Punjab .	31
1	1	14	13	2					N 69° E	8·1	8·2			64	·818	2·4	5	3·50	+ 1·50	1·13	4·52	−3·31	4·43	7·02	− 2·59	0·48	Khushab .	West Punjab .	32
2	2	3	8	5	4	6	1		S 48° E	11·0	9·5			55	·771	1·7	1	3·20	− 2·20	0·40	2·48	-2·08	2·51	3·89	− 1·38	0·40	Montgomery.		
8	4	12	3	3	1				N 55° E	2·4	2·5	2·4	+ 4	74	·990	1·9	3	3·10	− 0·10	2·03	2·38	−0·35	3·76	3·37	+ 0·39	0·90	D. I. Khan.		
7	1	4	1	6	2	10			S 6° E	2·4	3·0	3·4	− 12	65	·892	1·5	2	2·50	− 0·50	1·59	2·41	−0·82	4·33	3·33	+ 1·00	0·97	Mooltan.		
6		2	3	15	4	1			S 46° E	4·4	4·6	5·3	− 13	76	1·113	2·2	0	1·60	− 1·60	0	1·22	−1·22	0·33	1·47	− 1·14	0	Jacobabad .	Sind . .	47
		1	1		5	24			S 36° W	15·2	15·8	13·9	+ 14	67	·829	2·1	2	3·30	− 1·30	0·95	2·70	−1·75	5·04	3·26	+ 1·78	0·50	Hyderabad.		
					1	11	17	2	S 74° W	14·1	17·6	17·8	− 1	78	·978	5·4	0	3·00	− 3·00	0·04	3·66	−3·62	5·24	4·37	+ 0·87	0·04	Kurrachee.		
1		1	1	2	6	10	8	2	S 43° W	10·5		6·7	+ 57	59	·828	1·8	3	4·90	− 1·90	0·93	3·39	−2·46	2·81	5·97	− 3·13	0·46	Bikaner .	West Rajputana	51
	1	1			11	15	3		S 33° W	5·5	4·9	9·8	− 50	71	·940	0·3	1	5·40	− 4·40	0·19	4·63	−4·44	0·53	6·75	− 6·22	0·19	Pachpadra.		
1		1	1		4	13	11		S 56° W	9·7	8·7			61	·783	4·6	1	5·30	− 4·30	0·33	4·19	−3·86	2·47	5·95	− 3·48	0·32	Jodhpur.		
																				8·71	10·08	−0·80					VIII.—East Rajputana Central India and Gujarat.		
2	1	2	2	1	3	8	10	2	S 67° W	4·4		6·2	− 29	75	·847	6·6	10	10·90	− 0·90	4·91	8·66	−3·72	6·95	11·81	− 4·86	1·29	Jaipur .	East Rajputana.	50
7	1	1	6	6	1	1	6	1	S 45° E	4·5	4·0			84	·915	5·0	15			15·18			17·23			2·55	Bharatpur .		
3			3		2	11	7	5	S 68° W	7·6	9·0			72	·838	5·7	10	10·90	− 0·90	9·40	9·85	−0·45	11·56	14·53	−2·97	2·62	Kotah.		
6			4	2		1	14	4	N 87° W	8·1		9·1	− 11	69	·812	5·9	8	8·80	− 0·80	7·01	7·23	−0·22	9·49	9·57	− 0·08	2·74	Sambhar.		
1		1		4	1	5	17	2	S 74° W	8·5		6·9	+ 23	74	·812	5·7	6	9·50	− 3·50	3·51	7·42	−3·91	6·71	10·51	− 3·80	1·20	Ajmer.		
6				1	2	9	10	3	S 69° W	6·3	6·4			75	·811	5·5	7	9·50	− 2·50	3·01			4·31			0·70	Udaipur.		
				3	5	18	5		S 38° W	18·2		14·5	+ 25	69	·844	6·2	3	10·73	− 7·73	0·93	10·16	−9·23	1·62	12·68	−11·06	0·51	Deesa.		
	4			2	8	13	4		S 88° W	18·2		16·6	+ 10	77	·910	6·8	2	6·20	− 4·20	1·13	7·17	−6·34	1·95	9·59	− 7·64	0·69	Bhuj . .	Kathiawar and Cutch.	46
	2	1		6	16	4	2		S 50° W	8·1	9·6			77	·948	4·5	3			1·20			1·42			0·65	Jamnagar.		
	1	1	1	1	12	13	2		S 73° W	17·6	17·1	14·5	+ 20	80	·909	8·0	2	11·20	− 9·20	0·91	13·31	−12·40	0·98	18·65	−17·67	0·56	Rajkot.		
	1			1		13	14	2	S 74° W	17·0	17·0	14·8	+ 15	89	·935	8·0	6	10·90	− 4·90	6·54	7·24	− 0·70	7·59	12·49	− 4·90	3·15	Veraval.		
					1	13	13	4	S 73° W	21·9				83	·972	7·7	4			6·35			6·90			2·52	Dwarka.		
		1		2		19	3	6	S 62° W	14·2‡	13·3			82	·848	7·2	7	10·20	− 3·20	3·83	4·73	−0·90	4·41	9·85	− 5·44	1·75	Bhavnagar Para.		
3	2		3	1	2	3	16	1	S 82° W	3·3	3·3	4·2	− 21	84	·893	8·4	13	14·80	+ 3·20	29·97	14·20	+15·77	30·77	22·38	+ 8·09	9·16	Nowgong .	Central India .	49
1				1		5	15	9	N 85° W	9·8	7·9	6·8	+ 16	94	·801	8·1	11	12·50	− 1·50	9·60	9·00	+0·60	11·78	15·94	− 4·16	2·19	Indore.		
2				1		12	15	1	S 71° W	14·9	13·4	1 2·	+ 10	79	·802	6·3	12	10·10	+ 1·90	10·46	8·96	+1·50	10·69	14·26	− 3·67	2·72	Neemuch.		

‡ Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 227

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
45	Gujarat	Surat	39	29·598	−·035	29·580	29·726	23rd	29·449	9th	·277	83·2	90·7	+3·4	79·0	+1·7	84·8	+2·6	11·7	102·2?	7th	74·0	17th	28·2
		Ahmedabad	164	29·437	−·037	29·546	29·555	1st	29·312	16th	·243	84·9	98·3	+6·9	80·8	+2·6	89·6	+4·8	17·5	108·3	6th	75·1	15th	33·2
22	United Provinces (West)	Agra	555	28·957	−·042	29·465	29·073	7th	28·805	16th	·268	84·2	93·9	+0·6	80·7	+0·3	87·3	+0·5	13·2	107·0	13th	76·9	14th & 22nd,	30·1
21	United Provinces (Central).	Jhansi	858	28·686	−·033	29·487	28·838	1st	28·499	18th	·339	81·9	92·0	+0·8	79·1	+0·3	85·6	+0·6	12·9	110·3	1st	75·1	5 days	35·2
	IX.—Deccan				−·024								89·2	+2·7	74·0	+0·7	81·6	+1·7	15·2					29·6
38	Bombay (Deccan)	Belgaum	2,539	27·228	−·026	29·698	27·337	23rd	27·133	15th	·204	70·7	75·8	+0·1	67·5	+0·6	71·7	+0·4	8·3	89·3	1st	64·8	13th	24·5
		Sholapur	1,590	28·125	−·036	29·655	28·239	23rd	28·001	16th	·238	78·7	91·7	+2·2?	74·1	+2·4?	82·9	+2·3?	17·6	98·7	11th	70·5	20th	28·2
		Poona	1,840	27·861	−·040	29·641	27·975	23rd	27·739	16th	·236	75·4	84·8	+2·5	72·0	+1·2	78·4	+1·9	12·8	95·5	1st	70·4	22nd, 30th & 31st.	25·1
		Bijapur	1,946	27·801	−·022	29·683	27·921	23rd	27·679	16th	·242	76·1	87·6	+1·4	70·5	−0·3	79·1	+0·6	17·1	92·4	3rd, 6th & 11th,	60·7	15th	31·7
40	Khandesh	Malegaon	1,430	28·222	−·032	29·595	28·337	21st	28·090	16th	·247	79·6	90·5	+3·1	74·7	+1·4	82·6	+2·3	15·8	98·9	4th	72·0	17th	26·9
		Ahmednagar	2,152	27·569	?	29·651	27·684	23rd	27·438	16th	·216	75·9	86·6	+1·4?	71·6	+1·1	79·1	+1·3?	15·0	94·4	1st	69·4	18th & 21st,	25·0
41	Berar	Akola	930	28·709	−·028	29·584	28·827	20th	28·569	16th	·258	80·0	91·2	+2·2	75·2	+0·9	83·2	+1·6	16·0	101·8	12th	71·8	6th, 18th & 19th.	30·0
		Amraoti	1,215	28·425	−·016	29·591	28·541	20th	28·279	16th	·262	78·0	89·6	+2·3	74·8	+1·3	82·2	+1·8	14·8	100·3	12th	71·5	18th	28·8
42	Central Provinces (West).	Khandwa	1,044	28·579	−·023	29·574	28·689	1st & 20th.	28·436	16th	·253	80·2	91·0	+3·4	76·4	+1·1	83·7	+2·3	14·6	100·7	4th & 12th.	73·1	13th & 31st.	27·6
		Hoshangabad	1,006	28·600	−·022	29·559	28·708	20th	28·447	17th	·261	80·4	92·7	+6·0	77·0	+1·8	84·9	+3·9	15·7	102·9	1st	74·2	14th, 20th & 31st.	28·7
		Nagpur	1,025	28·583	−·020	29·565	28·701	23rd	28·436	16th	·265	79·1	90·7	+2·9	76·0	+0·9	83·4	+1·9	14·7	101·1	12th	72·1	4th & 5th	29·0
43	Central Provinces (Central)	Chanda	634									80·8	91·4	+2·8	75·5	−0·4	83·4	+1·2	15·9	103·2	1st & 2nd	71·5	13th	31·7
		Seoni	2,033	27·590	−·017	29·551	27·694	1st	27·408	17th	·286	76·6	86·5	+2·7	72·3	−0·3	79·4	+1·2	14·2	99·8	1st	69·0	17th	30·8
		Jubbulpore	1,327	28·240	−·031	29·517	28·360	1st	28·028	17th	·332	78·3	88·4	+2·5	74·9	+0·3	81·7	+1·4	13·5	107·0	1st	70·6	18th	36·4
		Saugor	1,807	27·781	−·021	29·526	27·928	1st	27·608	17th	·320	77·7	88·1	+2·9	74·6	+0·7	81·4	+1·8	13·5	103·4	1st	70·6	18th	32·8
49	Central India	Sutna	1,040	28·510	?	29·503	28·648	1st	28·294	17th	·354	80·1	89·2	+1·8	77·9	+0·9	83·6	+1·4	11·3	109·6	1st	70·6	28th	39·0
44	Central Provinces (East).	Raipur	970	28·624	−·018	29·541	28·710	23rd	28·456	16th	·254	79·1	88·7	+2·2	73·0	−1·9	80·9	+0·2	15·7	102·4	1st	68·9	29th	33·5
		Sambalpur	486	29·105	−·015	29·538	29·203	4th	28·883	16th	·320	80·6	88·4	+0·9	77·2	−0·1	82·8	+0·4	11·2	104·6	1st	73·2	16th	31·4
39	Hyderabad (North).	Aurangabad	1,905	27·788		29·626	27·901	21st	27·657	16th	·244	76·5	87·7		71·5		79·5		16·2	96·9	12th	68·2	20th	28·7
		Indur		28·415			28·552	19th	28·289	15th	·263	79·1	90·9		75·1		83·0		15·8	98·8	5 days	70·2	18th & 22nd,	28·6
		Bidar	2,165	27·554		29·648	27·661	22nd	27·433	16th	·228	75·5	88·6		70·4		79·5		18·2	95·3	2nd	68·4	26th & 31st,	26·9
53	Hyderabad (South).	Gulbarga	1,503	28·224	−·025	29·670	28·343	22nd	28·101	16th	·242	78·4	92·3	+2·5	72·1	+0·3	82·2	+1·1	20·2	97·4	2nd	63·7	25th	33·7
		Raichur	1,326	28·416	−·022	29·689	28·538	23rd	28·312	16th	·226	79·0	92·6	+2·5	73·3*	+0·2*	83·1*	+1·4	19·3	97·6	30th	68·1	23rd	29·5
		Hyderabad (Du.)	1,690	28·026	?	29·654	28·138	20th	27·904	16th	·234	77·8	90·4	+3·3	74·8	+3·1	82·6	+3·2	15·6	97·4	2nd	73·2	7 days	24·2
		Secunderabad	1,787	27·932	−·022	29·657	28·044	23rd	27·808	16th	·236	77·1	92·1	+5·0	74·0	+2·3	83·1	+3·7	18·1	101·9	2nd	72·0	4 days	29·9
		Hanumkonda	871	28·808		29·620	28·939	23rd	27·686	6	·253	80·9	92·3		77·6		85·0		14·7	100·3	1st & 2nd	74·3	25th	26·0
	X.—West Coast				−·020								83·2	0	75·7	+0·6	79·5	+0·3	7·5					14·6
37	Konkan	Bombay	37	29·658	−·044	29·635	29·804	23rd	29·511	7th	·293	81·5	85·9	+1·5	79·0	+1·5	82·5	+1·6	6·9	98·5	11th	76·5	21st	14·0
		Ratnagiri	110	29·642	−·025	29·690	29·781	23rd	29·516	6th	·265	79·8	83·9	0	76·2	+0·5	80·0	+0·3	7·7	89·4	1st	73·9	5 days	15·5
		Mormugao	60	29·725	−·026	29·720	29·855	23rd	29·611	6th	·244	79·7	83·6	−0·1	76·1	−0·1	80·0	−0·1	7·5	89·0	2nd	73·4	3rd & 12th	15·6
		Goa	199			Barometer out of order.						79·3	81·4	−1·0	76·9	+0·9	79·1	−0·1	4·5	86·0	1st & 2nd	74·0	13th	12·0
		Karwar	44	29·758	−·028	29·734	29·879	23rd	29·662	10th	·217	79·4	82·6	−0·4	75·5	+0·4	79·1	0	7·1	87·3	2nd	72·5	3rd & 4th	14·8
33	Malabar	Cochin	10	29·891	−·004	29·829	29·983	22nd	29·829	10th	·154	77·6	84·8	+1·3	74·3	+0·2	79·6	+0·8	10·5	89·3	9th	71·7	4th	17·6
		Calicut	27	29·849	−·016	29·805	29·955	22nd	29·777	11th	·178	77·1	82·9	+0·4	73·8	−0·1	78·4	+0·2	9·1	87·8	22nd	72·0	3rd	15·8
		Mangalore	65	29·783	−·024	29·780	29·906	22nd	29·699	15th	·207	77·8	82·4	−0·6	74·5	+0·3	78·5	−0·2	7·9	86·2	1st & 27th,	71·4	3rd	14·8
		Trivandrum	198	29·704	+·010	29·835	29·814	22nd	29·623	11th	·181	76·5	81·1	−1·0	74·8	+1·8	77·9	+0·4	6·3	83·0	4 days	72·0	4th	11·0

* Mean of 28 days

I—*continued.*

Stations in India, Burma, etc., in July, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected)	Mean velocity corrected (where possible),	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension	Mean cloud amount.	Rainfall. Number of rainy days	Normal number of rainy days	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May 1902 to 31st July 1902.	Normal rainfall for period, 1st May to 31st July.	Variation from norms of period, 1st May to 31st July 1902	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
	2		1	2	10	7	6	3	S 41° W	10·6	10·2	15·7	−35	83	·944	7·0	13	16·10	−3·10	25·33	17·68	+ 7·65	26·92	27·43	−0·51	17·52	Surat . .	Gujarat . .	25
	1			3	1	20	1	5	S 53° W	5·4	8·9			74	·871	6·7	8	13·50	−5·50	3·71	12·59	−8·88	4·20	19·36	−15·16	0·9	Ahmedabad		
1		6		9		8		4	S 37° E	4·5	5·2	5·0	+ 4	79	·9·3	6·6	11	10·80	+0·20	10 86	10·60	+0·26	12 89	14 06	−1·17	2·48	Agra . .	United Provinces (West)	22
1	1	6		4		7	6	6	N 78° W	5·4	6 0	4·1	+46	86	·9·9	4·0	15	13·10	+1·90	20·33	12·42	+8·21	22·05	18 59	+3·46	5·24	Jhansi, .	United Provinces (Central).	21
																				7·80	9·80	−2 00					IX.—Deccan.		
1					2	19	9		S 56° W	26·8		27·9	− 4	93	·689	9·3	24	21·80	+2·20	15·95	15·46	+0·49	26·03	26·39	−0·36	2·77	Belgaum .	Bombay Deccan.	36
						22	8	1	S 59° W	18·4	22·2	12·3	+81	70	·684	7·9	2	7·60	−5·60	0·57	4·19	−3·62	5·88	9·55	−3·67	0·13	Sholapur.		
				1	1	13	13	3	S 70° W	16·3	18·4	16·9	+ 9	81	·717	8·8	11	12·50	−1·50	6·98	7·05	−0·07	11·08	13·11	−2·03	1·90	Poona.		
					2	15	14		S 63° W					77	·692	9·0	1	5·10	−4·10	0·51	2·02	−1·51	6·12	7·36	−1·24	0·23	Bijapur.		
				1	2	10	13	5	S 74° W	10·9	12·5	11·8	+ 6	75	·764	6·9	9	7·30	+1·70	6·32	5·00	+0·32	8·49	10·17	−1·68	1·24	Malegaon .	Khandesh . .	40
1		2			4	9	11	4	S 72° W	13·2	16·1			78	·706	8·4	7	6·40	+0·60	3·93	2 81	+1·09	6·30	8·86	−2·56	1·21	Ahmednagar.		
3			1	1	2	8	10	6	S 77° W	8·7	6·6	8·4	−21	81	·820	8·6	13	12·30	+0·70	11·42	10·57	+0·85	11·89	16·20	−4·31	2 21	Akola . .	Berar . .	41
		1	1	2	4	10	12	1	S 57° W	12·5	11·1	7·6	+46	85	·815	7·9	17	12·30	+4·70	12·53	9·88	+2·65	13·96	17·33	−3·37	3·26	Amraoti.		
1			1		1	4	20	4	S 88° W	10·2		8·4	+21	79	·807	7·5	12	11·10	+0·90	16·80	8·89	+7·91	18·05	15·05	+3·00	4·02	Khandwa .	Central Provinces (West).	42
		1		3		26		1	S 40° W	6·5	6·6	4·5	+47	85	·877	6·8	13	16·10	−3·10	9·16	16·82	−7·66	11·10	24·15	−13·05	2·35	Hoshangabad		
4	15	2			1		4	5	N 18° W	9·6		10·1	− 5	83	·821	8·2	17	15·80	+1·20	9·86	14·66	−4·80	11·72	23·90	−12·18	2·37	Nagpur,		
13					1	9	7	1	S 65° W	5·1	4·5	6·2	−27	77	·8 4	7·3	17	16·80	+0·20	11·08	18 08	−7 00	13 99	26·50	−12·51	3·19	Chanda .	Central Provinces (Central).	43
	1	1		1	3	9	14	2	S 71° W	7·7		6·2	+24	86	·781	6·7	18	18·60	−0·60	14·33	17·09	−2·76	15·70	27·72	−12·02	1·84	Seoni.		
				4	5	8	11	3	S 55° W	5·3	4·7	5·0	− 6	87	·843	7·7	21	18·40	+2·60	18·11	20·15	−2·04	18·96	30·20	−11·24	2·82	Jubbulpore.		
1	1			1	1	4	22	1	S 83° W	8·8	10·0	5·1	+96	83	·793	7·8	15	16·50	−1·50	15·63	15·27	+0·36	16·37	24·56	−8·19	4·13	Saugor.		
1	1	2	2	2	1	8	12	2	S 73° W	8·5	9·1	9·4	−3	85	·862	9·9	19	15·00	+4·00	15·58	14·28	+1·30	16·00	21·98	−5·98	2·64	Sutna . .	Central India.	49
			1	1	2	25	2		S 41° W	6·3	5·8	11·6	−50	84	·826	7·5	15	15·80	−0·80	8·92	15·89	−6·97	9·85	25·71	−15·86	1·81	Raipur .	Central Provinces (East).	44
				4		13	12	2	S 62° W	6·1	6·0	3·6	+67	83	·879	7·3	23	19·50	+3·50	25·04	22 82	+2·22	26·43	35·79	−9·36	4·70	Sambalpur.		
1				2	1	10	15	2	S 71° W	6·3	6·2			80	·732	8·1	10	11·60	−1·60	4·57	6·82	−3·25	6·92	13·81	−6·89	1·38	Aurangabad,	Hyderabad (North).	39
1	5					5	4	16	N 56° W	9·1	7·6			77	·762	6·2	13	15·70	−2·70	8 97	11·11	−2·14	10·68	16·15	−5·47	1·60	Indur.		
						31			S 45° W	10·8	9·1			88	·780		5	12·60	−7·60	1·39	8·80	−7·41	4·16	15·54	−11·38	0·38	Bidar.		
						9	21	1	S 78° W	19·0	18·2			77	·752	8·5	4	9·10	−5·10	0·93	5·31	−4·38	5·48	12·18	−6·70	0·35	Gulbarga .	Hyderabad (South).	35
					1	29	1		S 45° W	18·3	17·4			70	·695	5·3	3	9·20	−6·20	0·49	5·53	−5·04	3·31	9·37	−6·06	0·26	Raichur.		
1						30			W	9·3	9·0			77	·733	6·8	6			1·50	6·73	−5·23	3·55	12·09	−8·14	0·48	Hyderabad (Dn.).		
						10	20	1	S 77° W	14·2		13·3	+11	76	·704	6·7	4	11·00	−7·00	1·53	6·73	−5·20	3·41	12·09	−8·68	0·54	Secunderabad		
2				1	2	7	18	1	S 75° W	11·7	9·9			69	·741	7·9	12	12·50	−0·50	4·84			7·37			0·80	Hanumkonda		
																				40·26	28·58	+11 68					X.—West Coast.		
			1	4	2	9	15		S 58° W	15·1		19·1	−2	86	·933	8·9	21	23·00	−2·00	14·54	26·05	−11·51	24·31	46·39	−22·08	3·10	Bombay .	Konkan . .	37
1				4	3	13	9	1	S 49° W	8·7	8 6	13·7	−37	89	·902	9·3	26	25·90	+0·10	32·51	35·68	−3·17	53·56	67·33	−13·77	3·29	Ratnagiri.		
				1	1		23	6	N 84° W	12·3				90	·918	9·1	27			44·25	31·88	+12·47	82·14	58·08	+24·06	7·73	Mormugao.		
			1		1	10	18	1	S 73° W					90	·901	9·7	26			43·93	32·68	+11·25	79·73	63·73	+16·00	7·39	Goa.		
1				2		22	5	1	S 53° W	7·1				83	·834	8·7	29	27·40	+1·60	59·72	37·78	+21·94	99·04	77·04	+22·00	12·16	Karwar.		
4	1	3	10	1	1	4	2	5	N 65° E	7·0				91	·866	8·7	27	23·40	+3·60	43·22	21·21	+22·01	67·10	62·59	+4·51	4·73	Cochin .	Malabar . .	33
6	3	4	4	2		6	1	5	N 8° W	8·5	10·7			91	·854	9·7	29	26·20	+2·80	52·08	29·05	+23·03	75·15	72·44	+2·71	9·14	Calicut.		
15	1					3	7	5	N 79° W	3·5		3·2	+ 9	92	·878	9·5	27	27·80	−0·80	62·32	36·03	+26·29	95·68	78 91	+16 77	9·30	Mangalore.		
5	10	1				1	1	13	N 28° W	5·7				89	·821	8·8	20	13·10	+6·90	9·65	6·86	+2·79	20·61	28·36	−7 75	1·34	Trivandrum.		

Table

Abstract of Observations taken at 8 A.M. at 227

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	XI.—South India				-·008								90·8	+0·8	75·2	+0·6	83·0	+0·7	15·6					25·1
57	Madras (South)	Pamban	37	29·811		29·775	29·923	22nd	29·735	5th	·188	82·7	88·6		79·5		84·1		9·1	92·8	4th	76·2	15th & 16th,	16·6
		Tinnevelly	168	29·677	+·006	29·774	29·790	22nd	29·591	11th	·199	84·4	96·3	+0·5	78·4	−1·0	87·4	−0·3	17·9	99·3	6 days	75·9	30th	23·4
		Madura	447	29·375	+·001	29·756	29·593	22nd	29·392	11th	·201	84·2	97·3	+0·1	76·8	+0·4	87·0	+0·3	20·5	101·5	24th	74·0	28th	27·5
		Periyakulam	945	28·888			29·006	22nd	28·810	9th	·196	78·5	92·3		72·1		80·3		20·2	98·7	27th	67·0	28th	31·7
38	Madras, (South Central).	Salem	940	28·899	−·017	29·780	29·015	22nd	28·815	11th	·200	78·8	93·8	+0·7	73·8	+0·8	83·8	+0·8	20·0	99·2	1st & 2nd	71·0	26th	28·2
		Coimbatore	1,348	28·488	−·003	29·786	28·605	22nd	28·408	11th	·197	75·8	87·0	−1·0	71·2	+0·5	79·1	−0·3	15·8	93·5	2nd	69·3	4th & 6th.	24·2
35	Coorg	Mercara	3,781	26·170	+·003		26·278	22nd	26·092	15th	·186	65·4	70·8	+1·9	62·5	+0·3	66·7	+1·1	8·3	78·0	1st	61·1	4 days	16·9
36	Mysore	Chitaldroog	2,405	27·460	−·022	29·725	27·522	23rd	27·299	15th	·223	73·5	83·3	+1·4	69·3	+0·9	76·3	+1·2	14·0	94·1	1st	67·9	22nd	26·2
		Bangalore	3,021	26·847	−·015	29·765	26·958	23rd	26·772	15th	·186	70·7	83·6	+1·7	66·4	+0·6	75·1	+1·2	17·2	89·8	2nd	64·3	26th & 27th,	25·5
		Hassan	3,091	26·787	−·014	29·783	26·898	22nd	26·711	15th	·187	71·0	76·4	−0·4	65·8	+0·8	71·1	+0·2	10·6	85·9	1st	63·9	6th	22·0
		Mysore	2,518	27·352	−·013	29·793	27·465	22nd	27·278	15th	·185	72·2	82·4	−0·3	67·4	+0·5	74·9	+0·1	15·0	89·1	1st	64·5	27th	24·6
56	Madras, East Coast, South.	Negapatam	31	29·775	−·011	29·735	29·894	22nd	29·687	11th	·207	84·7	96·0	+0·1	80·3	+2·1	88·2	+1·1	15·7	101·6	3rd	77·0	11th	24·6
		Cuddalore	12	29·782	−·003	29·723	29·909	23rd	29·691	11th	·218	84·3	96·2	+0·3	78·8	+1·1	87·5	+0·7	17·4	100·7	3rd	75·2	7th & 27th,	25·5
		Trichinopoly	255	29·570	+·001	29·756	29·698	22nd	29·485	11th	·213	83·8	98·6	+1·1	78·8	+0·9	88·7	+1·0	19·8	101·1	2nd 12th & 28th,	75·9	18th	25·2
		Madras	22	29·728	−·018	29·700	29·888	23rd	29·658	11th	·230	84·5	96·8	+1·1	79·4	+0·7	88·1	+0·9	17·4	102·0	27th	74·5	2nd	27·5
		Vellore	707	29·067		29·703	29·198	23rd	28·981	11th	·217	83·5	97·4		78·5		88·0		18·9	104·9	4th	75·5	11th & 23rd,	29·4
55	Madras, East Coast, Central	Nellore	71	29·677	+·003	29·681	29·827	22nd	29·586	12th	·239	86·4	99·0	+1·7	80·5	+0·9	89·8	+1·3	18·5	103·8	2nd &12th	74·6	22nd	29·2
		Masulipatam	15	29·698	−·001	29·648	29·836	22nd	29·598	12th	·238	83·5	93·7	+1·0	79·4	+1·3	86·5	+1·2	14·3	102·2	2nd	73·1	2nd	29·1
54	Madras, Central	Cuddapah	433	29·326	−·020	29·695	29·159	22nd	29·212	16th	·217	84·9	97·8	+2·5	78·9	+0·9	88·4	+1·7	18·9	101·2	11th & 12th,	74·8	1st &2nd	26·4
		Kurnool	923	28·813	−·022	29·682	28·995	22nd	28·702	16th	·243	80·8	95·5	+4·1	76·3	+1·6	86·0	+2·9	19·2	100·2	2nd	73·0	4th & 31st	27·2
		Bellary	1,375	28·298	?	29·712	28·429	23rd	28·199	16th	·230	79·6	91·3	+0·4	75·7	+1·1	83·5	+0·8	15·6	95·5	12th	72·2	22nd	23·3
52	Madras, East Coast, North.	Cocanada	26	29·662	+·005	29·623	29·810	22nd	29·551	16th	·259	81·2	91·3	−0·4	78·2	−1·1	84·8	−0·8	13·1	102·6	1st	74·5	17th	28·1
		Waltair (Vizag.)	226	29·430	+·001	29·596	29·551	23rd	29·297	16th	·254	81·7	87·7	−4·4	78·3	−2·2	83·0	−3·3	9·4	94·9	29th	72·4	2nd	22·5
		Gopalpur	21	29·587	−·003	29·548	29·693	23rd	29·393	16th	·300	81·6	86·7	−0·7	78·1	−1·1	82·4	−0·9	8·6	90·8	5th & 6th	72·1	21st	18·7
	XII.—Hill Stations.																							
48	Baluchistan	Pishin											96·3		61·9		79·2		31·4	99·4	20th	55·1	30th & 31st.	44·3
		Quetta	5,502	24·432	+·006		24·513	4th	24·331	16th	·182	76·9	93·4	+0·7	63·2	−1·5	78·3	−0·4	30·2	97·1	20th	56·4	12th	40·7
		Kalat										79·1	94·1	+1·0	46·8	−6·3	70·5	−2·7	47·3	102·4	15th	41·2	31st	61·2
		Chaman	4,311	25·371	−·008		25·483	4th	25·256	13th	·227	86·9	101·0	−0·5	73·6	−1·5	87·3	−1·0	27·4	104·2	20th	66·6	28th	37·6
30	Punjab and North-West Frontier Province.	Leh	11,503	19·624	−·019		19·710	1st	19·505	26th	·205	56·1	72·8	−5·4	47·9	−2·7	60·4	−4·1	24·9	81·7	22nd	41·3	27th & 28th,	40·4
		Srinagar	5,204	24·761	−·006		24·735	4th	24·559	13th	·176	69·6	84·7	−0·2	62·7	−1·9	73·7	−1·1	22·0	91·9	22nd	56·7	28th	35·2
		Gulmarg		21·743			21·834	6th	21·650	26th	·184	61·0	67·4		48·2		57·8		19·2	75·6	14th	42·3	28th	33·3
		Sonemarg		21·714			21·804	6th	21·579	15th	·225	54·1	70·2		46·7		58·5		23·5	77·3	22nd	39·6	28th	37·7
		Skardu		22·667			22·830	6th	22·550	26th	·280	69·4	85·7		60·3		73·0		25·4	100·1	3rd	51·7	5th	48·4
		Dras		20·667			20·770	6th	20·600	26th & 27th,	·170	61·3	79·1		47·1		63·1		32·0	86·5	22nd	36·1	28th	50·4
		Gilgit	4,890	24·831			25·051	4th	24·751	12th	·300	77·1	95·1	−1·5	70·2	−3·2	82·7	−2·4	24·9	107·0	22nd	66·9	28th	46·1
		Chitral		24·100			24·210	7th	24·000	15th 17th & 25th.	·210	78·2	98·7		66·0		82·4		32·7	105·2	14th	57·0	26th	48·2
		Killa Drosh										78·5	95·5		72·1		83·8		23·4	103·7	20th	64·9	2nd	38·8
		Para Chinar	6,000	24·288			24·373	4th & 6th.	24·183	26th	·190	76·6	86·8		66·0		76·4		20·8	94·7	13th	45·3	4th	49·4
		Cherat		25·490	+·008		25·608	6th	25·362	12th	·246	76·4	90·2	+1·6	71·4	+0·7	80·8	+1·2	18·8	101·4	13th	59·0	8th	42·4

I—*continued.*

Stations in India, Burma, etc., in July, 1902—continued.

Wind Direction, Number of winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind resultant.	Wind Velocity: Mean velocity in miles per hour by anemometer (uncorrected).	Mean velocity corrected (where possible).	Hygrometry, 8 A.M.: Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall: Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May 1901 to 31st July 1902.	Normal rainfall for period, 1st May to 31st July.	Variation from norms of period, 1st May to 31st July 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				5·16	4·69	+0·47					XI.—South India.		
					2	29			S 42° W	13·6	14·4			78	·875	2·8	0	0·60	−0·60	0	0·17	−0·17	1·75	0·84	+0·91	0	Pamban	Madras (South).	57
	3				1	3	12	12	N 70° W	7·9	7·6			62	·732	7·0	0	0·60	−0·60	0·11	0·27	−0·16	4·40	2·20	+2·20	0·04	Tinnevelly.		
6	6				1	8	3	7	N 72° W	3·0	3·0	4·6	−35	74	·763	6·4	0	3·00	−3·00	0·10	2·06	−1·96	7·72	5·96	+1·76	0·09	Madura.		
19	5	1	2				1	3	N 3° W	3·7	4·0			72	·697	6·6	4	1·90	+2·10	1·31	0·69	+0·62	6·43	4·47	+1·96	0·39	Periyakulam.		
12					2	9	8		S 60° W	2·5	2·3	4·7	−51	78	·778	7·1	8	7·00	+1·00	4·12	3·48	+0·64	17·85	11·46	+6·39	1·45	Salem	Madras (South Central).	34
						17	14		S 65° W	8·3	7·4	8·2	−10	86	·771	5·1	8	3·70	+4·30	4·89	1·23	+3·66	11·47	5·16	+6·31	2·64	Coimbatore.		
6							22	3	N 85° W	5·0	4·7	11·3	−58	97	·618	9·2	29	29·10	−0·10	51·71	40·35	+11·36	66·54	73·48	−6·94	7·13	Mercara	Coorg	35
					1	15	14	1	S 67° W	12·3	10·7			83	·687	9·3	6	8·60	−2·60	1·84	2·79	−0·95	5·29	10·33	−5·04	0·34	Chitaldroog	Mysore	36
					1	21	9		S 56° W	14·5	12·5	8·6	+45	83	·632	9·0	4	8·20	−4·20	1·26	4·06	−2·80	7·99	11·33	−3·34	0·46	Bangalore.		
						10	15	6	S 83° W	5·5	4·8			85	·646	9·5	13	12·60	+0·40	6·95	3·85	+3·10	15·07	14·03	+1·04	·253	Hassan.		
						23		8	S 64° W	12·7	13·7			82	·646	8·1	10	7·30	+2·70	3·79	2·32	+1·47	11·14	9·50	+1·64	1·37	Mysore.		
					4	23	3	1	S 45° W	5·1	7·1	7·1	0	66	·793	5·1	2	3·50	−1·50	0·65	1·88	−1·23	2·31	4·99	−2·68	0·40	Negapatam	Madras, East Coast, South.	56
26						3	2		S 62° W	1·6	2·0			68	·807	8·4	8	5·50	+2·50	5·18	3·53	+1·65	6·31	5·81	+0·50	1·81	Cuddalore.		
5						6	19	1	S 81° W	6·7		9·9	−32	64	·734	4·7	0	1·90	−1·90	0	1·31	−1·31	4·63	5·75	−1·12	0	Trichinopoly.		
				1	9	8	11	2	S 51° W	7·8		8·3	−6	68	·810	6·4	6	12·70	−6·70	4·21	4·02	+0·22	4·80	7·13	−2·33	1·91	Madras.		
5						13	4	8	S 78° W	4·3	4·3			59	·675	6·5	4	6·30	−2·30	1·83	3·58	−1·75	5·95	9·22	−3·27	1·00	Vellore.		
				1	4	5	10	11	S 89° W	7·6				61	·761	8·4	8	4·80	+3·20	3·91	2·84	+1·10	5·79	4·43	+1·36	1·47	Nellore	Madras, East Coast, Central.	55
2					1	2	11	15	N 71° W	9·2	8·8	9·7	−9	82	·938	8·7	6	9·40	−3·40	6·01	5·65	+0·36	8·42	11·75	−3·33	2·02	Masulipatam.		
					4	22	5		N 89° W					64	·761	6·1	5	6·20	−1·20	1·42	3·72	−2·30	7·35	8·87	−1·52	0·49	Cuddapah	Madras, Central	54
1	1				1	3	21	4	N 88° W					66	·698	7·8	4	9·30	−5·30	0·73	4·95	−4·22	3·12	9·26	−6·14	0·22	Kurnool.		
2						11	17	1	S 74° W	10·7	11·3	11·6	−3	68	·690	6·1	1	3·70	−2·70	0·48	1·68	−1·20	9·07	5·44	+3·63	0·20	Bellary.		
2	1	1				17	8	2	S 67° W	8·5	7·1			84	·901	7·5	13	9·90	+3·10	8·01	5·94	+2·10	10·04	11·63	−1·59	1·44	Cocanada.	Madras, East Coast, North.	52
				1		26	4		S 49° W	16·2				78	·844	8·9	8	7·70	+0·30	3·10	4·53	−1·43	6·19	10·83	−4·64	1·50	Waltair (Vizag.)		
	1		1		7	20	1	1	S 37° W	18·7	18·3	11·3	+62	85	·906	6·2	11	9·40	+1·60	12·21	7·75	+4·46	14·26	15·99	−1·73	2·96	Gopalpur		
																											XII.—Hill Stations.		
																	0	0·20	−0·20	0	0·08	−0·08	0	0·30	−0·30	0	Pishin	Baluchistan	48
31									Calm	1·3	1·4	5·1	−73	53	·495	0·1	0	0·60	−0·60	0·07	0·98	−0·91	0·65	1·57	−0·92	0·07	Quetta.		
	4		8		18		1		S 27° E					40	·406		0	1·00	−1·00	0	0·62	−0·62	1·36	1·34	+0·02	0	Kalat.		
7	1	1			5	14	1	2	S 45° W	9·2	10·0			27	·349	0	0	0·30	−0·30	0	0·14	−0·14	0·02	0·28	−0·26	0	Chaman.		
	2	3	4	1	6	6	8	1	S 45° W	2·4				50	·235	4·6	1	1·20	−0·20	0·23	0·40	−0·17	0·75	0·79	−0·04	0·15	Leh	Punjab and North-West Frontier Province.	30
10	4	2		4	6	1	1	3	S 11° E	3·5	3·7			89	·624	4·4	6	5·30	+0·70	2·38	2·97	−0·59	8·67	7·36	+1·31	0·68	Srinagar.		
3		9	11	3	1	1	2	1	N 78° E	3·9	4·5			85	·465	4·6	8			2·13						0·39	Gulmarg.		
10		14		4	1		2		N 57° E	4·7	4·3			85	·357	3·5	12			3·67			10·80			0·52	Sonemarg		
13	1	4	3			5	5		N 83° W	5·7	5·8			50	·356	2·7	0	0·70	−0·70	0·08	0·32	−0·24	1·15	1·76	−0·61	0·02	Skardu.		
18		1	1	2		3	5	1	S 64° W	8·2	8·4			57	·305	3·8	0	0·90	−0·90	0·27	0·48	−0·21	3·17	4·01	−0·84	0·08	Dras.		
27						2			S 45° W	4·0	3·6			42	·374	4·0	5	2·00	+3·00	0·88	0·84	+0·04	1·81	1·76	+0·05	0·25	Gilgit.		
30					1				S					48	·453	1·2	1			0·52			1·08			0·18	Chitral.		
30			1						E					47	·457	1·0	4			0·90			2·48			0·32	Killa Drosh.		
28			1	1	1				S 45° E	3·5				52	·470	5·2	4	7·80	−3·80	2·76	3·81	−1·05	7·84	7·26	+0·58	1·50	Para Chinar.		
	1	7		6	9	5		3	S 22° E	7·5	7·0			62	·562	3·7	3			2·72	4·88	−2·16	3·99	6·82	−2·83	2·04	Cherat.		

Table

Abstract of Observations taken at 8 A.M. at 227

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°)	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
30	Punjab and North-West Frontier Province—*concld.*	Murree	6,333	23·686	−·018		23·810	6th	23·575	26th	·235	66·9	76·2	−0·8	58·5	−4·0	67·4	−2·4	17·7	84·8	1st	50·4	5th & 8th,	34·4
		Poo											75·1		56·2		65·7		18·9	81·7	3rd	47·9	8th	33·8
		Simla	7,224	22·971	−·003		23·064	4th	22·876	16th	·188	62·4	68·3	−0·9	58·9	−1·2	63·6	−1·1	9·4	78·4	1st	52·5	8th	23·9
25	United Provinces.	Chakrata	7,052	23·129	−·013		23·230	4th	23·029	26th	·201	62·3	67·8	−2·1	59·5	−0·7	63·7	−1·4	8·3	77·2	1st	53·8	7th	23·4
		Mussooree	6,705	23·399	−·006		23·502	4th	23·291	26th	·208	63·6	69·9	−1·1	60·1	−0·5	65·0	−0·8	9·8	81·8	1st	52·5	8th	29·3
		Ranikhet	6,069	23·927	−·016		24·034	4th	23·824	25th & 26th.	·210	66·0	73·9	0	62·6	−0·4	68·3	−0·2	11·3	84·0	1st	57·5	8th	26·5
		Muktesar		22·712			22·816	1st	22·620	26th	·196	61·2	68·8		57·8		63·3		11·0	83·0	1st	53·3	6th	29·7
13	Bengal	Darjeeling	7,376	22·888	−·025		22·985	5th	22·784	15th	·201	60·9	66·0	0	57·5	−0·2	61·8	−0·1	8·5	71·7	16th	54·6	6th	17·1
8	Assam Hill Tracts	Shillong	4,920	24·958			25·105	6th	24·838	15th	·267	68·5	75·3		64·7		70·0		10·6	80·6	16th	59·5	2nd	21·1
		Cherra Poonjee	4,309	25·517			25·660	5th	25·364	15th	·296	66·9	71·9		64·9		68·4		7·0	80·3	7th	62·5	1st	17·8
	Central India	Mount Abu	3,945	25·809	−·007		25·914	1st	25·696	16th	·218	70·4	80·9	+6·3	67·4	+1·7	74·2	+4·0	13·5	87·7	7th	65·3	5 days	22·4
		Pachmarhi	3,528	26·202	−·016		26·325	1st	26·031	17th	·295	71·5	81·3	+5·5	69·1	+1·4	75·4	+3·5	11·9	89·2	4 days	64·7	18th	24·5
	South India	Wellington	6,200	24·184	0		24·270	22nd	24·111	11th	·159	63·8	71·6	+0·5	57·3	−0·6	64·5	−0·1	14·3	78·2	2nd	51·2	21st	27·0
		Kodai Kanal	7,688	22·779			22·867	22nd & 23rd.	22·719	9th	·148	57·8	62·9		53·1		56·8		9·8	68·2	1st	51·2	22nd	17·0
		Ootacamund		22·939			23·053	21st & 22nd.	22·929	15th	·154	56·8	62·3		52·7		57·5		9·6	69·5	2nd	46·2	21st	23·3
		Dodabetta*		21·958			22·071	21st	21·870	14th	·201	54·5												
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·845	?	29·783	29·968	23rd	29·758	11th	·200	81·4	90·8	−0·8	78·1	+0·5	84·5	−0·2	12·7	93·0	5 days	74·5	23rd	18·5
		Colombo	40	29·875	0	29·841	29·971	23rd	29·802	10th	·169	80·7	86·2	+0·8	76·4	−1·2	81·3	−0·2	9·8	88·0	9th & 28th.	74·5	5th	13·5
												82·3			66·2	+0·7						59·8	7th & 9th	
	Persia	Meshed	3,104				25·850	1st	25·620	13th	·230													
		Teheran		§§25·722 ¶ 24·669			24·780	1st & 28th, 1st	24·560	14th	·220	86·4	99·7	+1·4	73·3	+1·2	86·6	+1·3	26·4	107·0	6th	59·5	24th	47·5
		Ispahan‡		§§24·160			24·310		24·040	14th	·270	79·6	98·3	0	66·2	0	82·3	0	32·1	102·0	17th	54·1	29th	47·9
		Bushire	14	29·488	+·007	29·461	29·583	30th	29·397	14th	·186	88·6	93·8	−1·5	83·1	−1·2	88·5	−1·4	10·7	99·0	25th & 26th,	76·5	31st	22·5
		Bahrein‡‡	30	29·518			29·615	22nd	29·431	28th	·184	91·0	97·0		85·0		91·0		12·0	102·6	26th	80·5	20th	22·1
		Jask		29·476	−·054		29·585	30th	29·360	14th	·225	90·9	97·0	+1·2	87·0	+2·2	92·1	+1·7	10·0	104·7	28th & 29th,	83·7	6th	21·0
		Muscat	20	29·485	−·031	29·451	29·595	21st	29·352	20th	·247	90·2 ††	92·5 ††	+1·1	88·4 ††	+0·9	90·5 ††	+1·0	4·1	100·5	27th	82·8	16th	17·7
	Arabia	Baghdad	220	29·451	+·005	29·633	29·575	5th	29·320	15th	·255	89·9	111·8 ††	+4·9	78·3	−0·9	95·1 ††	+2·0	33·5	118·4	2nd	71·1	10th	47·3
		Bussrah		29·571			29·674	20th	29·433	12th	·241		102·8		83·7		93·3		19·1	105·9	16th	77·9	11th	29·0
		Aden	94	29·621	−·002	29·645	29·701	23rd	29·538	8th	·163	88·7	94·3	+1·5	82·9	+1·2	88·6	+1·4	11·4	98·3	3rd	76·9	3rd	21·4
		Perim	201	29·517	−·008	29·646	29·631	22nd	29·436	11th	·195	80·0	96·0	−0·5	85·9	+2·5	90·9	+1·0	10·1	100·1	1st	85·1	5 days	15·0
	Afghanistan	Kabul										76·1	94·8	+2·5	58·1	−3·4	76·5	−0·5	36·7	99·1	4 days	49·8	6th	49·3
	Central Asia	Kashgar	4,255	25·381 ‖			25·600	29th	25·200	16th	·400	77·1	91·4	−0·1	67·0	−1·6	79·2	−0·9	24·4	102·3	2nd	57·3	7th	45·0
	Arabian Sea Islands.	Minicoy	7	29·906		29·888	30·005	22nd	29·830	10th	·175	81·4	85·5	+0·3						88·7	3rd			
	Africa	Zanzibar	73	30·070 §	−·028	30·069	30·148	1st	30·012	19th	·136	75·5	81·6	+1·4	73·8	+1·1	77·7	+1·3	7·8	83·3	1st	71·1	21st	12·2
		Do. Dunga		30·007			30·081	1st	29·950	16th	·131	74·0	84·4		66·6		75·5		17·8	87·6	7th	62·4	24th	25·2

NOTE.—When a query is inserted against any reading or in the variation returns for any station, the data for that

* 1 P.M. observations. † Mean of 19 days. ‡ Observations of 30 days. § Mean of 23 days. ‖ Mean of 30 days. ¶ Mean of 29 days.

•• Mean of 28 days. †† Mean of 26 days. ‡‡ Observations of 26 days.

I—*concluded.*

Stations in India, Burma, etc., in July, 1902—concluded.

Wind Direction. Number of winds from: Calm	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour by anemometer (uncorrected).	Mean velocity corrected (where possible)	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May 1902 to 31st July 1902.	Normal rainfall for period, 1st May to 31st July.	Variation from normal of period, 1st May to 31st July 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
10	3	2	1	5	3	1	1	5	N 45° E	4·8	5·2	5·7	−9	76	·506	4·4	11	16·20	−5·20	4·85	11·85	−7·00	17·02	18·34	−1·32	0·98	Murree.	Punjab and North-West Frontier Province—*concld.*	
21		1	1		3	5			S 18° W							7·0	6			2·47	1·14	+1·33	3·88	2·12	+1·76	1·01	Poo.		
7	8	6	2	3	2			2	N 36° E	4·2		1·6	+163	87	·491	7·2	23	18·90	+4·10	14·68	16·84	−2·16	20·03	27·75	−7·72	1·65	Simla.		
24	3				3	1			S 45° W	8·0		4·6	+74	89	·508	7·6	21	19·80	+1·20	24·02	20·07	+3·95	32·22	31·27	+0·95	3·93	Chakrata .	United Provinces.	35
3		1	6	2	3	6	7	3	S 42° W					92	·534	8·1	24	22·00	+2·00	29·08	29·36	−0·28	35·83	42·41	−6·58	3·40	Mussooree.		
20	1	1				7	1	1	S 67° W	1·8	2·1	2·1	0	89	·571	8·5	21	18·30	+2·70	11·12	13·86	−2·74	16·73	22·61	−5·88	1·21	Ranikhet.		
	2		2	15	1		3	8	S 45° E	7·3	6·7			92	·502	8·5	21			15·28			19·96			2·92	Muktesar.		
8	2	9	1	5		2	3	1	N 56° E	3·8	3·5	2·6	+35	96	·513	8·5†	25	22·94	+2·06	35·82	33·50	+2·32	61·46	66·05	†−1·59	4·78	Darjeeling.	Bengal.	13
														85	594	8·0	16	18·00	−2·00	12·12			30·62			2·80	Shillong .	Assam Hill Tracts	8
														96	·638	9·1	29	27·30	+1·70	117·19			219·48			11·38	Cherra Poonjee		
	1	1		3	1	21	1	3	S 47° W	13·7	13·8	10·5	+31	88	·645	7·7	8	17·60	−9·60	2·40	23·23	−20·83	5·35	30·43	−25·08	0·48	Mount Abu.	Central India.	
4				1		4	13	9	N 83° W	12·9	13·3	9·5	+40	89	·687	8·4	20	22·00	−2·00	16·98	25·11	−8·13	18·79	36·53	−17·74	3·03	Pachmarhi.		
5		1		3	3	19			S 31° W	4·7		5·8	−19	75	·445	8·0	10	7·90	+2·10	5·81	3·38	+2·43	1·55	10·75	−0·20	2·58	Wellington .	South India.	
						2	18	11	N 77° W	17·5				79	·377	7·4	14	8·40	+ 5·60	3·73	3·89	−0·16	11·35	14·37	−3·02	0·63	Kodai Kanal.		
5						8	17	1	S 78° W	6·2	5·8			88	·408	8·0	15	12·30	+2·70	10·93	5·94	+4·99	26·35	18·05	+8·30	1·03	Ootacamund.		
														91	·387	9·3	20			11·37						2·60	Dodabetta.		
																											XIII.—Extra India.		
						31			S 45° W	13·4††				85	·520	4·0	1			0·30	1·97	−1·67	2·76	5·94	−3·18	0·26	Trincomalee	Ceylon.	
			1	6	6	16	2		S 21° W	9·1		9·0	+ 1	86	·908	6·5	13			4·70	4·83	−0·13	26·71	24·18	+2·53	1·00	Colombo		
														40	·442	0·**	0			0	0·01	−0·01	0	0·98	−0·98	0	Meshed .	Persia.	
17		1		1	5	5		2	S 30° W	1·6	2·0			29‖	·359‖	0·8	3			0·36	0·41	−0·05	0·36	0·78	−0·42	0·13	Teheran.		
24	2	1	1				1·	1	N	2·8¶	3·6¶			53	·540	0·6	0			0	0	0	0·04	0·49	−0·45	0	Ispahan.		
	2	2	2	1	1		3	20	N 39° W	10·3	12·3	9·2	+34	72	·970	1·2	0			0	0	0	0	0	0	0	Bushire.		
	6	1					7	12	N 45° W					75	1·097		0			0			0			0	Bahrein.		
			14	13	1			3	S 69° E	12·8	14·8			74	1·080	0·7	0			0	0·02	−0·02	0	0·13	−0·13	0	Jask.		
				22			1	6	S 42° E	4·4	4·6			80	1·123	1·4	0			0	0·04	−0·04	0	0·40	−0·40	0	Muscat		
6	13						3	9	N 25° W	3·7	4·8			35	·493	0·2	0			0	0	0	0	0·24	−0·24	0	Baghdad .	Arabia.	
																				0			0			0	Busrah.		
1		1		3	4	8			S 14° W			9·1		70	·949	2·7	0			0	0·03	−0·03	0	0·23	−0·23		Aden.		
																				0	0·03	−0·03	1·35	0·40	+0·95	0	Perim.		
						18	7	6	S 69° W	19·5	17·5			71	·992	0·5	0			0	0·20	−0·20	0·67	0·95	−0·28	0	Kabul .	Afghanistan.	
		2	5	8	4	12			S 13° E					29	·263	0·8	0			0	0·29	−0·29	0	1·48	−1·48	0	Kashgar .	Central Asia.	
28	1				2	13	15	2	S	3·1	2·8			40	395	2·2	0			0								
				2	1	12			S 71° W	16·7	17·8			84	·895	7·6	13			16·27	6·66	+9·61	38·06	21·66	+16·40	3·46	Minicoy.	Arabian Sea Islands.	
				3	17	19			S 15° W	9·0	8·5			87	·768	6·6	8			4·94	2·74	+2·20	18·02	14·43	+3·59	1·61	Zanzibar .	Africa.	
2																							14·73			0·92	Do. Dunga.		
					6				S 27° W	5·6	5·5			91	·763	4·5§	5			3·04								

station, the data for that station are not utilized in calculating the provincial variations.

§§ Aneroid uncorrected. ¶¶ Mountain barometer uncorrected. ‖‖ Aneroid corrected.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 62 Stations in India, Burma, etc., in July, 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Bay Islands.	Port Blair	61	29·787	29·710	0·77	29·756	+·013	29·747	86·3	79·1†	7·2	88·7	76·1	12·6	84·3	84·2	81·7†	+1·4	76·1	79·6	79·0	78·2
	Rangoon	41	·758	·677	·081	·724	−·009	·702	84·9	75·6	9·3	91·2	72·9	18·3	81·5	80·6	78·5	+0·2	74·4	78·4	77·7	76·8
	Diamond Island	41	·756	·687	·069	·729	−·003	·705	85·0	77·3	7·7	88·0	74·0	14·0	82·9	82·0	79·9	+1·4	74·5	78·8	78·4	77·2
	Cocos Island	119									Not yet	received										
	Akyab	20	·690	·611	·079	·654	−·015	·617	83·5	77·0	6·5	89·9	74·3	15·6	80·6	81·1	79·2	−0·8		79·0	79·0	
Bengal and Orissa.	Chittagong	87	·565	·478	·087	·529	−·027	·563	85·0	76·1	8·9	90·2	74·4	15·8	81·8	82·4	79·5	−0·5	75·3	78·3	78·9	77·5
	Calcutta (Allpore)	21	·566	·478	·088	·528	−·009	·494	88·5	78·5	10·0	93·4	74·9	18·5	84·7	85·1	83·3	+0·2	77·0	80·2	80·4	79·2
	Saugor Island	25	·559	·474	·085	·523	−·013	·491	88·1	80·7	7·4	91·3	76·6	14·7	85·3	85·7	83·3	+0·5	78·3	81·1	81·6	80·3
	False Point	21	·588	·498	·090	·548	−·016	·511	87·1	78·9	8·2	92·1	73·3	18·8	84·3	84·3	81·8	0	77·0	80·0	80·0	79·0
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·573	27·492	·081	27·541	−·027	·462	86·1	74·3	11·8	96·2	72·3	23·9	80·8	81·0	78·6	+0·5	72·3	74·7	73·8	73·9
	Darbhanga	166	29·402	29·292	·110	29·353	−·025	·470	89·5	79·7	9·8	96·3	76·9	19·4	85·8	87·2	83·4	−0·3	77·6	81·3	82·0	80·3
	Allahabad	369	·234	·133	·101	·186	−·021	·443	92·6	79·2	13·4	113·5	72·8	40·7	85·9	88·3	84·5	−0·2	76·3	80·2	80·8	79·1
Upper Sub-Himalayas.	Dehra Dun	2,233	27·361	27·293	·071	27·322	−·024	·476	84·5	72·6	11·9	94·4	67·0	27·4	78·8	81·0	77·4	−2·0	70·3§	74·1	75·0	73·1
	Roorkee	899	28·651	28·557	·094	28·601	−·018	·452	89·5	76·9	12·6	98·9	72·1	26·8	83·2	87·1	82·3	−2·3	74·8	77·5	78·8	77·0
	Meerut	738	·784	·703	·081	·741	−·024	·431	90·7	78·6	12·1	103·4	73·8	29·6	84·5	87·3	83·8	−1·7	76·1	78·5	79·7	78·1
	Lahore	702	·800	·696	·104	·747	−·024	·393	101·1	81·5	19·6	113·2	70·0	43·2	90·9	98·9	90·3	+2·0	76·0	79·5	81·2	78·9
	Ludhiana	812	·709	·612	·097	·659	−·020	·418	96·0	80·3	15·7	106·6	71·1	35·5	88·2	93·1	87·0	+0·3	75·6	78·5	79·0	77·7
N.-W. Frontier Prov., Indus Valley and N.-W. Rajputana.	Peshawar	1,110	·408	·281	·127	·344	−·017	·392	103·1	79·0	24·1	111·5	68·8	42·7	93·4	100·7	90·1	+0·5	71·3†	77·9	77·2	75·5
	Jacobabad	186	29·255	29·148	·107	29·200	−·034	·334	112·0	87·4	24·6	121·5	83·6	37·9	99·0	110·1	98·8	+4·1	82·6	P	P	P
	Kurrachee	30	·513	·433	·080	·478	−·026	·458	94·6	83·0†	11·6	104·7	79·2	25·5	89·9	90·4	87·3†	+3·3	78·9	82·4	83·2	81·5
E. Rajputana, Central India, and Gujarat.	Jaipur	1,431	28·139	28·039	·100	28·090	−·027	·443	95·6	78·7	16·9	107·4	72·0	34·4	87·9	92·3	85·7	+1·8	72·9	78·4	79·2	77·5
	Udaipur	1,925	27·684	27·596	·088	27·640		·469	92·3	77·0	15·3	100·0	70·1	29·9	85·2	89·2	83·9		73·3	76·5	78·3	76·0
	Deesa	466	29·112	28·993	·119	29·054	−·042	·459	101·1	81·3	19·8	110·9	73·0	37·9	90·5	98·9	90·6	+6·8	75·2	78·0	78·5	77·2
	Jamnagar	61	·536	29·456	·080	·496		·503	95·7	80·5	15·2	99·7	77·6	22·1	89·8	91·4	87·0		76·4	80·2	81·2	79·3
Deccan.	Belgaum	2,539	27·239	27·176	·063	27·207	−·027	·667	75·5	67·5	8·0	80·8	64·9	15·9	72·4	72·5	70·6	+0·5	67·1	70·0	69·9	69·9
	Sholapur	1,590	28·126	28·021	·105	28·082	−·036	·589	91·7	74·1	17·6	98·7	70·5	28·2	83·6	87·8	80·9	+2·7	70·1	72·5	73·0	71·9
	Akola	930	·717	·601	·116	·659	−·030	·528	91·2	75·2	16·0	101·8	71·6	30·2	84·0	88·2	82·4	+1·9	73·4	76·5	77·2	75·7
	Buldana	2,132	27·544	27·447	·097	27·495	−·032	·532	86·5	71·9	14·6	95·5	69·3	26·2	79·7	84·2	78·6	+2·3	69·7	72·9	73·6	72·1
	Khandwa	1,044	28·583	28·474	·109	28·529	−·031	·511	90·8	76·4	14·4	101·5	73·1	28·4	84·0	88·8	82·7	+2·8	73·2	76·4	77·3	75·6
	Nagpur	1,025	·605	·495	·120	·545	−·016	·511	90·4	76·1	14·3	101·1	72·1	29·0	82·5	86·0	82·2†	+2·0	73·5	76·4	77·1	75·7
	Do. (Sanitary Commr.'s Office).	1,013	·616	·507	·109	·562		·517	90·5	75·9	14·6	101·5	72·2	29·3	83·9	86·7	82·3		73·6	77·2	78·3	76·4
	Hyderabad (Deccan).	1,690	·029	27·922	·107	27·981	−·019	·583	90·5	74·8	15·7	97·9	73·0	24·9	82·5	88·3	82·1	+2·6		75·1	76·6	
West Coast.	Bombay	37	29·666	29·601	·065	29·632	−·037	·608	85·7	79·0	6·7	90·3	76·4	13·9	82·9	83·4	82·3	+1·4	76·7	79·0	79·1	78·3
	Karwar	44	·776	·720	·056	·746	−·018	·722	82·5	75·5	7·0	87·1	72·5	14·6	80·6	80·1	79·0	+0·3	73·4	76·5	76·3	P

† Mean of 30 days. § Mean of 27 days.

II.

62 Stations in India, Burma, etc., in July, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from											Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·866†	·953	·928	·916	+·018	87†	81	79	82	− 3	6·3	6·7	6·5	−1·1				1	7	5	26	22	1	S. 52° W.	S. 47° W.	72	87*	325*	268	9·01	2·59	Port Blair .	Burma Coast and Bay Islands.
·837	·930	·917	·895	+·009	94	86	87	89	− 1	8·9	8·9	8·9	−0·1			1	3	9	21	20	8		S. 17° W.	S. 34° W.	68	74	60*	129	24·30	3·27	Rangoon .	
·810	·932	·924	·889	+·012	87	83	84	85	− 2	8·0	8·9	8·5	+0·3					5	9	34	13	1	S. 44° W.	S. 42° W.	81	80	357*	240	18·37	3·37	Diamond Island, Cocos Island	
	·976	·965				93	91			9·4	8·9	9·2	+0·5				2	17	32	10	1		S. 6° E.	S. 1° E.	84	67	79*	98	83·95	10·05	Akyab .	
·870	·923	·943	·912	−·002	96	85	85	89	+ 2	8·8	8·6	8·7	+0·8			2	5	18	15	20	1	1	S. 5° E.	S. 30° E.	64	56	228*	165	35·57	5·03	Chittagong .	Bengal and Orissa.
·908	·974	·976	·952	−·010	93	82	81	85	− 2	9·0	9·3	9·2	+0·9	1	1	4	5	11	12	18	4		S. 2° W.	S. 8° E.	56	63	132	122	15·52	3·39	Calcutta (Alipore).	
·938	1·009	1·028	·992	−·005	89	83	83	85	− 1	8·5	9·3	8·9	+0·7		2	3	1	7	22	24	2	1	S. 16° W.	S. 21° W.	66	60	491	357	22·74	7·38	Saugor Island.	
·907	·969	·970	·949	+·011	92	82	82	85	0	8·8	8·4	8·6	+0·4				1	3	8	33	15	2	S. 49° W.	S. 53° W.	79	63	275*	277	15·64	4·26	False Point	
·772	·787	·787	·782	−·029	91	75	75	80	− 5	10·0	10·0	10·0	+0·7	3	6	2	3	4	13	11	12	8	S. 60° W.	S. 9° E.	34	14	205*	210	14·14	2·41	Hazaribagh	
·919	1·012	1·024	·985	+·017	91	82	79	84	+ 1	6·7	6·1	6·4	+0·1	12	1	1	23	20	1	2	2		S. 67° E.	S. 77° E.	60	56	88	121	14·58	2·70	Darbhanga	Gangetic Plain and Chota Nagpur.
·871	·955	·953	·926	−·025	88	78	74	80	− 1	8·6	8·7	8·7	+0·9	1	4	8	12	5	7	6	11	8	N. 29° E.	N. 71° E	1	7	186*	151	18·72	4·76	Allahabad .	
·714§	·785	·796	·765	−·038	89§	80	76	82	− 2	8·5	7·7	8·1	+0·4	2	2	1	3	9	15	7	11	10	S. 38° W.	S. 12° W.	35	13	37†	26	18·85	2·07	Dehra Dun .	Upper Sub-Himalayas.
·837	·873	·878	·863	−·009	90	77	69	79	+ 3	6·6	5·7	6·2	−0·2	21		1	2	24	5			9	S. 42° E.	S. 37° E.	32	33	59	70	11·61	1·85	Roorkee .	
·872	·904	·924	·900	+·013	90	77	72	80	+ 6	7·6	7·3	7·5	+0·8	17	4	4	8	12	1	8	3	5	S. 58° E.	S. 69° E.	14	21	32*	57	11·17	2·82	Meerut .	
·829	·857	·827	·837	−·017	77	60	45	61	0	4·1	1·6	2·9	−1·4	5	5	11	15	16	6	1	2	1	S. 82° E.	S. 77° E.	50	30	104	80	2·59	2·05	Lahore .	
·827	·854	·806	·829	−·038	81	65	53	66	− 3	4·5	4·5	4·5	−1·5	3	2	10	1	33	4	3	3	3	S. 53° E.	S. 40° E.	48	23	83*	52	6·10	2·15	Ludhiana .	
·673	·769	·650	·697	−·020	68†	50	34	51	− 2	1·7	3·1	2·4	−0·5	7	10	28	5	1	4	2	3	2	N. 38° E.	N. 49° E.	52	47	73*	107	0·78	0·45	Peshawar .	N.W. Pron., Prov., Indus Valley and N.-W. Rajputana.
1·052	?	?	?	?	81	?	?	?	?	1·6	1·1	1·4	−0·9	16			6	24	13	3			S. 33° E.	S. 44° E.	62	59	110*	133	0	0	Jacobabad .	
·940†	1·007	1·040	·996	+·067	83†	71	73	75	− 3	4·3	3·4	3·9	−3·0		1				4	29	26	2	S. 65° W.	S. 68° W.	84	85	426*	415	0·04	0·04	Kurrachee .	
·819	·851	·833	·834	−·004	83	65	57	68	− 6	6·7	7·2	7·0	−0·4		7	6	5	1	2	10	17	8	N. 83° W.	N. 72° W.	39	28	107	133	4·91	1·29	Jaipur .	E. Rajputana, Central India and Gujarat.
·772	·814	·810	·809		83	67	62	71		6·3	5·6	6·0		4	1		2	2	4	19	24	6	S. 71° W.		66		173*		3·01	0·70	Udaipur .	
·794	·791	·702	·762	−·066	75	55	38	56	−18	6·7	6·2	6·5	−1·6		1	1		6	8	34	10	2	S. 33° W.	S. 42° W	63	73	438	351	0·93	0·51	Deesa .	
·858	·906	·932	·898		83	65	63	70		4·8	4·6	4·7			3	2			8	27	15	4	S. 61° W		66		558*		1·20	0·65	Jamnagar¶.	
·662	·707	·701	·690	+·021	98	89	88	92	+ 2	9·2	9·6	9·4	+0·3						3	43	16		S. 54° W.	S. 68° W.	92	87	662	647	15·95	2·77	Belgaum .	Deccan.
·688	·662	·627	·659	−·005	82	58	49	63	− 5	8·7	8·5	8·6	+0·1	1				1		44	14	2	S. 56° W.	S. 76° W.	89	83	519*	336	0·57	0·13	Sholapur .	
·800	·811	·787	·799	+·031	92	70	61	74	− 1	8·3	8·5	8·4	−0·1	7	1	2	1	2	2	9	20	18	N. 81° W.	N. 74° W.	58	73	157*	210	11·12	2·21	Akola .	
·699	·725	·698	·707	−·002	89	72	61	74	− 5	7·6	8·2	7·9	−0·2		4	1	1	2	6	18	24	6	S. 73° W.	N. 79° W.	64	74	217*	219	7·13	1·53	Buldana .	
·783	·811	·792	·795	+·014	86	70	60	72	− 5	7·1	8·1	7·6	−0·3	1	4	2	1	1	1	9	31	12	N. 83° W.	N. 85° W.	69	82	244	217	16·80	4·02	Khandwa .	
·791	·833	·817	·814	+·001	88	76	67	77	− 3	8·2	8·7	8·5	−0·2	2	25	10	2	2	2	3	3	11	N. 3° W.	S. 88° W.	57	69	240‡	243	9·86	2·37	Nagpur .	
·803	·854	·865	·841		89	74	69	77		7·4	7·6	7·5		12		4		7		35	1	5	S. 39° W.		50		67*		11·64	1·82	Do. (Sanitary Commr.'s Office).	
	·740	·774				66	59			7·5	7·5	7·5	+0·1	3						1	57	1	W.	N. 86° W.	94	90	217*	249	1·50	0·48	Hyderabad (Deccan).	
·883	·945	·943	·924	+·017	90	84	82	85	− 2	8·6	9·0	8·8	−0·3				1	3	4	18	34	2	S. 69° W.	S. 74° W.	77	85	368	450	14·54	3·10	Bombay .	West Coast.
·799	·861	·853	·838	+·006	90	83	82	85	− 1	8·6	9·4	9·0	+1·2		1					31	26	4	S. 70° W.	S. 73° W.	87	75	172	123	59·72	12·16	Karwar .	

‡ Mean of 29¼ days. ¶ Wind variable §. * Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at

Meteorological Provinces.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure.						Temperature of air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	28·888	28·784	·104	28·847			92·3	72·1	20·2	98·7	67·0	31·7	84·8	86·8	80·7		69·0	73·5	73·5	72·0
	Salem	940	·898	·787	·111	·855	−·022	29·722	93·7	73·8	19·9	99·9	71·2	28·7	84·0	86·5	81·2	+0·5	71·5	75·5	76·2	74·4
	Chitaldroog	2,405	27·402	27·329	·073	27·375	−·027	·686	82·9	69·4	13·5	88·2	67·9	20·3	77·5	78·3	75·0	+1·5	67·4	70·9	71·4	69·9
	Bangalore	3,021	26·851	26·767	·084	26·820	−·014	·706	83·6	66·4	17·2	90·0	64·3	25·7	76·1	80·0	74·1	+1·8	65·0	68·3	68·8	67·4
	Hassan	3,091	·797	·737	·060	·778	−·016	·757	76·2	65·8	10·4	82·4	63·9	18·5	73·8	73·2	70·2	+0·7	64·7	68·8	68·1	67·2
	Mysore	2,518	27·357	27·286	·071	27·322	−·013	·747	82·4	67·5	14·9	88·8	64·7	24·1	76·6	77·7	73·8	+0·5	66·6	69·7	69·7	68·7
	Madras	22	29·750	29·635	·142	29·703	−·016	·652	96·9	79·3	17·6	101·9	74·5	27·4	89·5	90·6	86·0	+0·8		77·7	79·0	77·6
	Bellary	1,475	28·302	28·212	·090	28·266	−·016	·664	91·3	75·4	15·9	95·5	72·2	23·3	83·5	86·8	81·3	+0·8	70·3	73·1	74·5	72·6
	Waltair	226	29·138	29·315	·093	29·392		·556	87·6	78·3	9·3	94·8	72·5	22·3	83·2	84·5	82·2		72·0	77·0	78·2	75·7
Hill Station, Baluchistan.	Quetta	5,502	24·437	24·350	·087	24·392	+·006		93·5	63·3	30·2	96·9	56·3	40·6	86·0	91·6	78·0	+0·2	55·4	63·0	62·7	60·4
Hill Stations, Northern India.	Leh	11,503	19·621	19·518	·103	19·579	−·017		72·7	47·8	24·9	81·5	41·3	40·2	64·6	69·8	58·4	−3·2	42·4	50·9	53·8	49·0
	Srinagar	5,204	24·656	24·572	·084	24·612	−·019		84·6	62·7	21·9	91·8	56·7	35·1	74·2	82·6	73·2	−1·0	60·8	70·4	70·0	70·1
	Kailang	10,087	20·827	20·754	·073	20·795	P		72·3	47·9	24·4	79·3	41·9	37·4	63·0	67·4	58·5	−2·6	46·3	55·5	55·6	52·5
	Simla (Ridge)	7,224	22·982	22·936	·046	22·957	−·009		67·9	58·9	9·0	73·4	52·5	20·9	64·2	65·4	63·0	−1·9	57·2*	61·1	62·2	60·2
	Chakrata	7,022	23·112	23·069	·043	23·119	−·009		67·7	59·5	8·2	73·2	53·8	19·4	64·2	64·7	63·0	−1·6	58·4	61·9	63·2	61·2
	Ranikhet	6,069	·938	·876	·062	·899	−·023		73·2	62·7	10·5	79·3	57·7	21·6	68·2	69·7	67·3	−0·9	61·5	64·9	66·3	64·2
	Mukteasar	7,000	22·728	22·667	·061	22·698			68·1	57·8	10·3	75·7	53·3	22·4	63·1	64·5	62·1		57·3	61·2	62·5	60·3
	Katmandu	4,388	25·524	25·445	·079	25·486	P		82·4	68·5	13·9	87·2	63·7	23·5	77·1	76·7	74·1	−1·4	67·3	71·0	71·3	69·9
	Darjeeling	7,376	22·895	22·850	·045	22·875	−·017		66·0	57·6	8·4	71·8	54·7	17·1	62·9	61·3	61·4	+0·3	57·4	61·2	62·0	60·2
Hill Stations, Central India.	Mount Abu	3,945	25·819	25·754	·065	25·788	−·020		80·8	67·4	13·4	87·7	65·1	22·6	73·9	79·3	73·7	+4·3	65·9	68·8	69·8	68·2
	Pachmarhi	3,528	26·217	26·139	·078	26·178	−·020		80·8	69·4	11·4	89·4	64·7	24·7	73·4	76·3	74·5	+2·7	67·9	70·1	71·4	69·8
	Chikalda	3,642	·118	·033	·085	·075	−·025		77·7	66·9	10·8	86·8	63·0	23·8	72·4	75·9	72·3	+2·3	65·5	69·4	71·2	68·7
Hill Stations, S. India.	Kodaikanal	7,688	22·791	22·735	·056	22·761			62·8	53·1	9·7	67·8	51·2	16·6	60·0	58·4	56·7		49·8	56·1	56·0	53·6
	Ootacamund		23·012	·957	·055	·985			62·0	52·8	9·2	69·5	46·4	23·1	59·2	58·0	56·4		51·5	56·1	55·6	54·4
Extra India.	Aden	94										Imperfect.										
	Perim	201	29·522	29·415	·107	29·466	−·003	·594	95·9	85·9	10·0	99·3	85·1	14·2	92·9	92·9	90·2	+0·2	79·9	82·8	83·7	82·1
	Minicoy	7	·910	·856	·054	·890		·822	85·6			88·7			83·1	82·7				78·3	77·7	
	Zanzibar	73	30·092*	·985	·107	30·039	−·031	30·038*	81·5	73·8	7·7	83·1	71·1	12·0	77·2*	80·5	77·4	+1·2	70·0	73·4*	73·2	72·2
	Port Victoria (Seychelles)	15	·001	·928	·073	29·965	−·028	29·904	81·6	73·7	7·9	82·7	68·2	14·5	80·0	81·0	77·5	−0·2	71·4	74·1	74·3	73·3
	Mauritius (Pamplemouses)	181				·962	−·051	30·104				78·3	56·2	22·1			69·0	+1·2				

* Mean of 30 days.

II—*concluded.*

62 Stations in India, Burma, etc., in July, 1902—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
														Number of winds from																	
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·668	·674	·650	·668		85	57	52	64		6·3	8·0	7·2		10	6	6	4	3	13	12	5	3	S. 24° W.		19		95‡		1·31	0·39	Periyakulam	
·741	·773	·772	·762	+·016	89	66	62	72	+ 1	6·5	8·8	7·7	+1·3	25	1	1			2	21	9	3	S. 63° W.	S. 55° W	47	78	54‡	108	4·12	1·45	Salem	South India.
·649	·673	·684	·669	+·046	90	72	71	78	+ 2	9·0	9·3	9·2	+0·1						1	28	30	3	S. 70° W.	S. 78° W.	89	87	261‡	291	1·84	0·34	Chitaldroog	
·603	·6.5	·579	·596	−·013	93	67	57	72	− 5	8·6	8·1	8·4	+1·6						2	35	25		S. 62° W.	S. 73° W.	90	91	305‡	217	1·26	0·46	Bangalore	
·599	·652	·632	·628	+·039	94	78	78	83	+ 2	9·2	9·4	9·3	+0·1							17	36	9	S. 84° W.	S. 89° W.	89	90	115‡	125	6·95	2·53	Hassan	
·615	·642	·632	·640	+·032	95	70	67	77	+ 2	9·0	9·3	9·2	+0·3							26	33	1	S. 70° W.	S. 77° W.	92	91	335‡	368	3·80	1·37	Mysore	
	·790	·834	·836	+·043		57	59	68	+ 1	6·8	6·8	6·8	−0·4					6	12	20	22	2	S. 49° W.	S 48° W.	71	67	186	191	4·24	1·91	Madras	
·679	·688	·705	·690	+·032	77	60	55	64	+ 1	6·3	7·2	6·8	−1·5						1	26	30	5	S. 73° W.	S. 87° W.	87	88	280‡	262	0·48	0·20	Bellary	
·704	·851	·887	·814		73	75	75	74		8·6	8·5	8·6						2	1	57	2		S. 44° W.		95		152		3·10	1·50	Waltair	
·364	·340	·272	·325	−·114	61	28	18	36	−11	0·3	1·1	0·7	−0·9	38	8			1	2		5	8	N. 42° W.	S. 85° W.	24	30	34‡	91	0·07	0·07	Quetta	Hill Station, Baluchistan.
·228	·259	·231	·256	0	68	42	39	50	+ 5	5·1	5·0	5·1	0		4	4	4	3	10	17	15	5	S. 57° W.	S. 73° W.	40	38	59	47	0·23	0·15	Leh	
·514	·706	·958	·726	+·018	90	83	85	86	+ 8	4·0	4·6	4·3	+0·3	28	4	4	2	4	2	2	6	10	N. 43° W.	N. 20° W.	16	11	83‡	93	2·38	0·68	Srinagar	
·303	·330	·344	·342	−·016	88	65	62	68	+ 2	6·5	7·1	6·8	+0·4		1		1	9	11	8	18	14	S. 65° W.	S. 81° W.	47	65	45	49	1·42	0·20	Kailang	Hill Stations, Northern India.
·455*	·510	·551	·493	−·035	91*	85	84	86	− 2	8·7	9·5	9·0	+0·2	19	10	5	3	8	11		1	5	N. 87° E.	N. 5° E.	13	26	98	86	14·68	1·65	Simla (Ridge)	
·483	·532	·566	·527	−·019	95	88	91	91	0	7·8	9·0	8·4	0	13	6	1	1	7	32	2			S. 9° E.	S. 75° W.	52	45	187	131	24·02	3·93	Chakrata	
·536	·582	·611	·576	−·005	94	84	84	87	+ 1	9·0	9·1	9·1	+0·6	36	1	2		1	1	5	11	5	N. 88° W.	S. 62° W.	26	25	47‡	59	11·12	1·21	Ranikhet	
·466	·526	·549	·514		97	91	90	93		9·0	9·1	9·1			2	8	3	23	3	7	3	13	S. 46° E.		18		166‡		15·28	2·92	Muktesar	
·655	·695	·706	·685	−·003	94	75	77	82	+ 2	7·4	8·3	7·9	+1·1			6	18	4		10	6	18	N. 6° W.	S. 67° W.	11	10	23	21	13·80	2·32	Katmandu	
·470	·524	·529	·508	−·011	98	91	89	93	− 2	8·0*	7·9†	8·0	−0·9	5		9	4	20	2	13	7	2	S. 21° E.	S. 75° E.	31	32	82‡	91	35·82	4·78	Darjeeling	
·622	·649	·618	·630	−·006	93	78	62	78	−11	7·5	6·8	7·2	−1·4		2	4	1	2	7	41	2	3	S. 43° W.	S. 54° W.	67	67	333‡	278	2·40	0·48	Mount Abu	Hill Stations, Central India.
·664	·695	·714	·691	+·020	93	85	80	86	− 2	8·3	8·2	8·3	−0·5	13	1					9	20	19	N. 78° W.	N. 87° W.	66	76	306‡	252	16·98	3·03	Pachmarhi	
·615	·689	·715	·673	+·018	93	88	81	87	− 5	7·1	6·7	6·9	−2·1	41	2							19	N. 41° W.	N. 55° W.	33	68	219‡	239	17·58	3·05	Chikalda	
·327	·413	·428	·381		81	80	87	83		7·7	9·0	8·4		2	3				4	1	14	31	N. 60° W.		72		427		3·73	0·63	Kodaikanal§	Hill Stations, S. India.
·370	·422	·421	·404		92	84	86	87		8·3	9·1	8·7		6					1	17	31	4	S. 78° W.		81		141‡		10·93	4·03	Ootacamund	
																Imperfect.															Aden	
·942	·991	1·035	·989	+·202	76	64	67	69	+13	0·5	0·2	0·4	−2·1		2					17	8	31	N. 72° W.	N. 56° W.	75	60	420‡	386	0	0	Perim	Extra India.
	·901	·886				80	79			7·0	7·5	7·3							2	38	20	2	S. 60° W.		90		427‡ *‡		16·27	3·46	Minicoy	
·685	·773*	·719	·726	+·036	82	83*	69	78	0	6·0*	4·7	5·4	+0·8					16	36	9			S. 5° E.	S. 5° E.	87	83	202	207	4·94	1·61	Zanzibar	
·747	·764	·763	·758	+·053	90	74	72	79	+ 5	5·1	5·7	5·4	−0·2	1	1	1	3	32	19	4	1		S. 28° E.	S. 29° E.	77	86	267	287	0·92	0·25	Port Victoria (Seychelles).	
			·541	+·025				76	+ 1																		250	284	2·06	0·67	Mauritius (Pamplemouses)	

† Mean of 27 days. ‡ Corrected. § Wind variable 1.

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TABLE III.—Barometric changes during 4 hours preceding 8 A.M. of date, in July 1902.

TABLE IV.—Variation of pressure from normal, in July 1902.

Table III.—Barometric changes during

STATION.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tiflis		−·056	−·076												+·008?
Baku		−·072	−·124												+·044
Tashkent			+·052	+·124										0	+·104
Kasbgar	−·060	−·080	−·080	0	+·020	+·100	−·020	−·100	+·040	+·040	−·040	−·020	−·020	0	−·090
Gilgit	+·008	−·050	+·107	+·104	−·091	+·022	−·041	−·110	−·032	+·058	−·025	−·081	+·176	−·066	−·048
Omsk					+·332										
Tomsk															
Teheran		−·040	−·040	−·020	−·030	−·020		−·030		−·020	−·010	+·080	−·100	+·020	+·010
Chitral	+·025	0	0	0	0	0	+·010	−·085	0	−·050	−·025	−·010	+·010	+·025	−·075
Ispahan	+·050	−·060	−·010	+·020	−·060	−·050	+·010			0	0	+·020	−·020	−·060	+·020
Baghdad	−·014	−·009	+·002	+·051	+·009	−·072	−·018	−·027	−·046	+·019	−·017	−·005	+·017	−·072	−·039
Bushire	−·050	−·080	−·045	+·103	+·036	−·048	−·076	−·012	+·016	+·018	−·025	+·011	−·038	−·030	+·019
Bussrah	−·008	−·083	−·026	+·103	−·003	−·040	−·099	+·011	0	+·116	−·102	−·095	+·093	−·039	+·027
Bahrein	−·035	−·093	−·044	+·120	+·030			−·059	+·012					−·061	+·010
Muscat	−·025	−·041	−·004	+·103	−·032	−·130	+·080	−·003	+·029	−·073	+·052	−·078	−·041	+·010	+·008
Jask	−·025	−·035	+·033	+·072	−·013	−·049	+·010	−·029	−·044	+·012	−·015	−·024	−·047	−·012	+·064
Perim	−·015	−·037	−·054	−·011	+·030	−·019	−·032	−·017	−·003	+·010	−·040	+·034	+·017	−·035	+·028
Aden	−·044	−·040	−·059	+·007	+·060			−·058	+·018	0					
Zanzibar	+·054	−·008	−·034	−·002	−·004	−·039	−·002	+·001	−·015	+·009	−·027	+·015	+·003	+·021	−·001
Seychelles	+·020	−·025	−·016	+·034	−·016	−·013	−·013	+·011	−·053	+·011	−·017	+·015	+·008	+·016	−·004
Port Blair	−·010	−·021	−·020	−·059	+·083	+·054	−·023	−·033	−·027	+·012	−·036	−·033	+·004	+·026	+·030
Penang	−·005	+·068	−·063	−·043	+·128	−·037	+·027	−·002	−·048	−·030	+·042	−·040	+·008	−·007	+·011
Singapore	−·018	−·008	+·003	+·051	−·002	−·009	−·020	−·034	+·021	−·028	−·016	+·020	+·005	+·019	0

Table IV.—Variation from

STATION.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tiflis*	+·168	+·112	+·036		−·092									+·032?	+·040
Baku*	+·208	+·136	+·012		−·164									−·052	−·008
Tashkent*		+·172	+·224	+·348									+·020	+·020	+·124
Barnaul*			−·400												
Omsk*		+·076		−·176	+·156										
Tomsk*			−·308												
Irkhutsk*															
Baghdad	+·034	+·024	+·024	+·074	+·084	+·022	+·013	−·003	−·043	−·020	−·038	−·038	−·028	−·102	−·141
Bushire	+·066	−·011	−·053	+·053	+·092	+·046	−·028	−·039	−·022	−·003	−·027	−·015	−·052	−·081	−·061
Muscat	+·030	−·010	−·014	+·087	+·054	−·075	+·004	0	+·029	−·044	+·007	−·071	−·113	−·104	−·097
Jask	−·011	−·047	−·015	+·057	+·043	−·006	+·003	−·027	−·072	−·061	−·078	−·104	−·152	−·166	−·103
Perim	+·062	+·029	−·025	−·035	−·004	−·022	−·050	−·066	−·067	−·055	−·094	−·060	−·042	−·074	−·044
Aden	+·050	+·012	−·046	−·038	+·022		−·027	−·084	−·066						
Zanzibar	+·049	+·040	+·005	+·002	−·002	−·041	−·043	−·042	−·057	−·018	−·073	−·059	−·056	−·054	−·035
Seychelles	+·014	−·009	−·022	+·011	−·001	−·011	−·019	−·006	−·031	−·049	−·065	−·049	−·043	−·031	−·039
Port Blair	+·004	−·018	−·038	−·098	−·017	+·037	+·013	−·020	−·047	−·035	−·071	−·103	−·099	−·072	−·043

* Approximate normal data for July have been obtained by interpolation from the normal values for June, July and August.

24 hours preceding 8 A.M. of date, in July 1902.

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	STATION.
		+·108	+·124	−·100	−·016			−·096	+·068			−·120	−·100	+·172	−·008	Tiflis.
		+·140	+·196	−·068				−·120	+·024			−·080	−·148	+·052	+·084	Baku.
		−·020	+·008			+·088	−·012	−·016	+·023	+·004	+·048	−·048	−·056	−·044	−·088	Tashkent.
−·020	+·110	0	+·080	+·120	0	−·100	−·080	0	+·020	+·060	+·060	+·020	+·110	−·070	−·080	Kashgar.
−·051	+·129	−·028	+·009	+·311	?	?	?	−·021	+·085	−·107	+·120	+·130	−·028	?	?	Gilgit.
														+·156	+·088	Omsk.
					+·160											Tomsk.
+·010		+·040	+·025	+·045	−·010	+·050	−·010	−·100	+·050	+·050		−·040	−·070	+·010	+·050	Teheran.
+·025	−·025	+·050	+·010	+·015	+·050	−·015	−·035	−·025	−·050	+·050	0	+·125	−·025	−·075	0	Chitral.
+·010	+·030	+·050	+·010	+·040	0	−·030	0	−·070	+·050	+·050	+·040	−·040	−·050	+·010	+·040	Ispahan.
+·039	+·128	−·052	−·105	+·008	+·120	+·059	−·087	−·046	+·066	+·036	−·069	−·017	+·131	−·010	0	Baghdad.
+·028	−·022	−·015	+·036	+·062	+·043	−·007	−·021	−·021	+·037	−·063	−·057	−·006	+·055	+·098	−·036	Bushire.
+·010	+·006	0	−·031	+·175	−·064	+·023	−·022	−·029	−·004	+·091	−·164	+·010	+·070	+·046	−·026	Bussrah.
+·011			+·039	+·053	+·051	+·026	−·061	−·010	+·014	−·026	−·064	−·037			−·016	Bahrein.
−·011	−·020	−·029	+·030	−·037	+·248	−·025	−·040	−·038	+·044	−·064	−·034	+·008	+·058	+·085	−·022	Muscat.
−·038	+·039	−·028	+·071	+·065	+·033	−·028	−·031	−·007	+·015	−·012	−·096	+·022	+·066	+·090	−·121	Jask.
0	−·002	−·016	+·009	+·046	+·066	+·050	−·016	−·061	+·024	+·002	−·027	−·072	−·008	+·049	+·037	Perim.
								−·052	+·031	+·001	−·024	−·106	+·028	−·027	+·136	Aden.
−·035	+·012	−·014	−·016	+·033	+·028	+·038	+·016	−·059	+·013	−·034	+·023	+·018	−·048	+·021	+·048	Zanzibar.
−·028	+·035	−·027	+·022	+·023	+·046	+·028	+·001	−·065	+·006	+·025	−·025	−·028	−·003	+·029		Seychelles.
+·054	+·050	+·003	−·007	+·019	+·042	+·021	−·025	−·037	−·053	−·025	−·026	−·032	+·061	+·048	−·042	Port Blair.
+·092	−·035	−·016	−·050	+·053	+·044	−·047	+·067	−·064	−·026	0	−·021	+·021	+·038	−·042	+·025	Penang.
+·009	+·023	−·003	+·061	−·004	+·042	−·013	−·013	+·014	−·048	−·035	+·009	−·023	+·017	+·026	+·002	Singapore.

normal, in July 1902.

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	STATION.
	+·028	+·136	+·260	+·160	+·128		+·112	+·016	+·084		+·068	−·052	−·152	+·020	+·012	Tiflis.*
	−·120	+·020	+·216	+·148			+·064	−·056	−·032		−·012	−·092	−·240	−·188	−·104	Baku*
	+·092	+·076	+·084		+·100	+·188	+·176	+·160	+·180	+·184	+·232	+·184	+·128	+·084	−·004	Tashkent.*
				−·100												Barnaul.*
	+·164				−·228		+·004		−·048				0	+·156	+·244	Omsk.*
				−·180	−·068									+·240		Tomsk.*
								−·084								Irkhutsk.*
−·095	+·033	−·009	−·113	−·103	+·022	+·095	+·022	−·018	+·015	+·094	+·025	+·004	+·124	+·094	+·081	Baghdad.
−·032	−·054	−·068	−·032	+·050	+·093	+·086	+·065	+·044	+·081	+·017	−·040	−·047	+·006	+·103	+·065	Bushire.
−·108	−·129	−·158	−·129	−·166	+·080	+·055	+·014	−·023	+·019	−·045	−·080	−·073	−·017	+·066	+·042	Muscat.
−·143	−·106	−·136	−·066	−·003	+·029	−·001	−·034	−·042	−·029	−·042	−·140	−·119	−·054	+·035	−·086	Jask.
−·042	−·015	−·060	−·049	−·001	+·067	+·117	+·101	+·043	+·068	+·070	+·042	−·030	−·037	+·010	+·045	Perim.
							+·085	+·031	+·061	+·061	+·025	−·071	−·044	−·073	+·062	Aden.
−·069	−·057	−·070	−·085	−·051	−·023	+·016	+·033	−·025	−·012	−·045	−·022	−·002	−·049	−·028	+·021	Zanzibar.
−·069	−·039	−·070	−·052	−·028	+·021	+·053	+·057	−·004	+·005	+·033	+·010	−·016	−·017	+·014		Seychelles.
+·012	+·053	+·066	+·060	+·079	+·122	+·133	+·119	+·082	+·030	+·005	−·021	−·052	+·009	+·057	+·014	Port Blair.

given in Climatological Atlas of the Russian Empire, issued by the Observatoire Physique Central, St. Petersburg, 1900.

CHART
OF
INDIA

SHEWING THE MEAN 8 A.M. DISTRIBUTION OF PRESSURE AND WIND DIRECTIONS IN THE MONTH OF **JULY 1902.**

29·45
29·50
29·40
BAR
LOW
29·40
29·45
29·50
29·55
29·60
29·65
29·70 A
29·75
29·80
29·55
29·60
29·65
29·70
29·75
29·80
BAR HIGH
BAR HIGH
ARABIAN SEA
BAY OF BENGAL
ANDAMAN SEA
INDIAN OCEAN

LITHO. BY J.N. MUNDLE.
Zinco. S. I. O., Calcutta

Explanation.

The lines of the above Chart represent isobars or lines of equal barometric pressure, and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of ·05 inch. The isobars in the Bay of Bengal are filled in by means of the shore observations, and by comparison with the ordinary or normal distribution of pressure as given in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant Meteorological Reporter to the Government of India and published by the Meteorological Department. Hence they have not the same validity as the isobars in the land area of India itself, but it is probable they deviate very little from the actual.

The mean 8 a.m. wind directions of the month are shewn by means of arrows flying with the wind, and are calculated by means of Lambert's formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0 to 2 miles per hour	one	feather added to the wind arrow
,, ,,	2 to 5 ,, ,, ,,	two	feathers ,, ,, ,, ,,
,, ,,	5 to 10 ,, ,, ,,	three	,, ,, ,, ,, ,,
,, ,,	10 to 20 ,, ,, ,,	four	,, ,, ,, ,, ,,
	over 20 ,, ,,	five	,, ,, ,, ,, ,,

LITHO. BY J.N.MUNDLE.

Explanation.

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other, one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

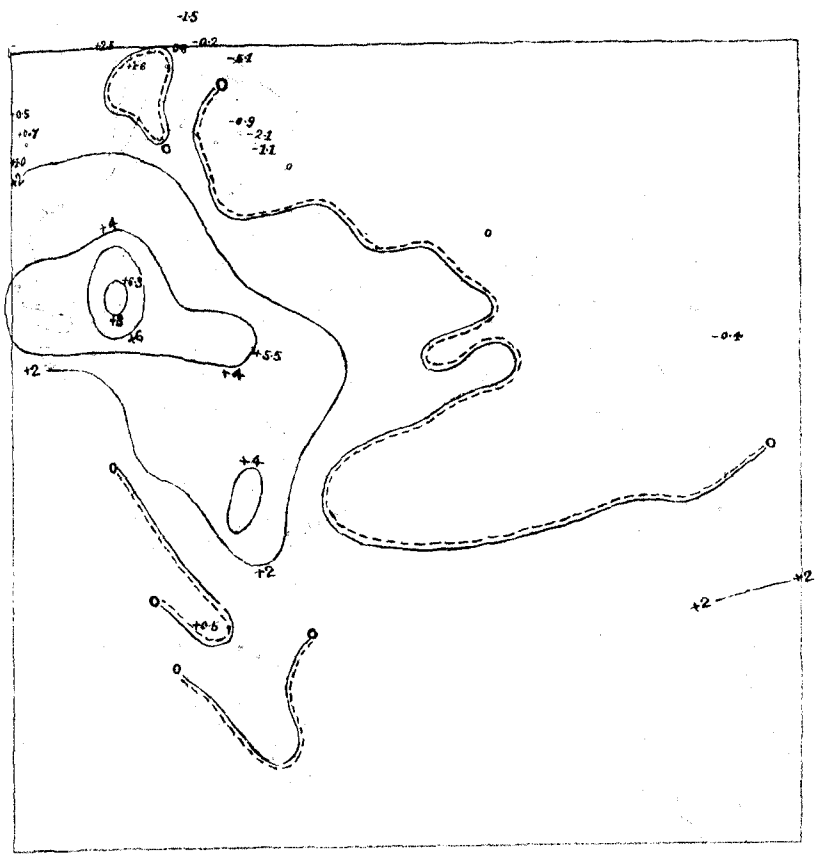
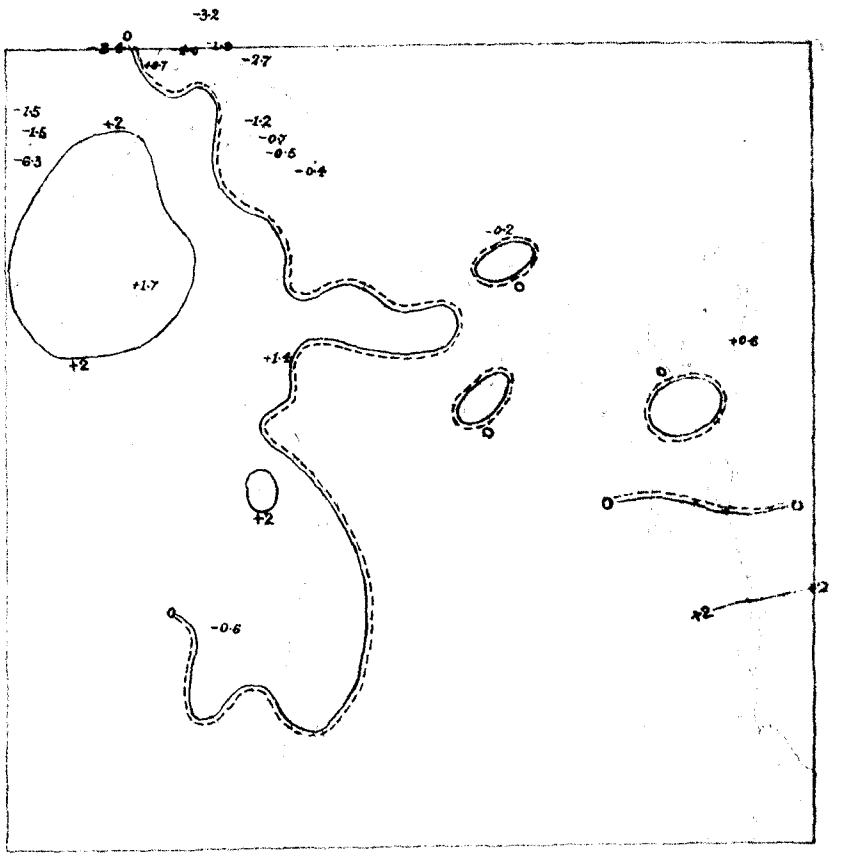


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous lines indicate that the mean maximum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

Continuous lines indicate that the mean minimum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

CHART SHEWING THE VARIATION OF THE MEAN DAILY TEMPERATURE OF THE MONTH FROM THE NORMAL.

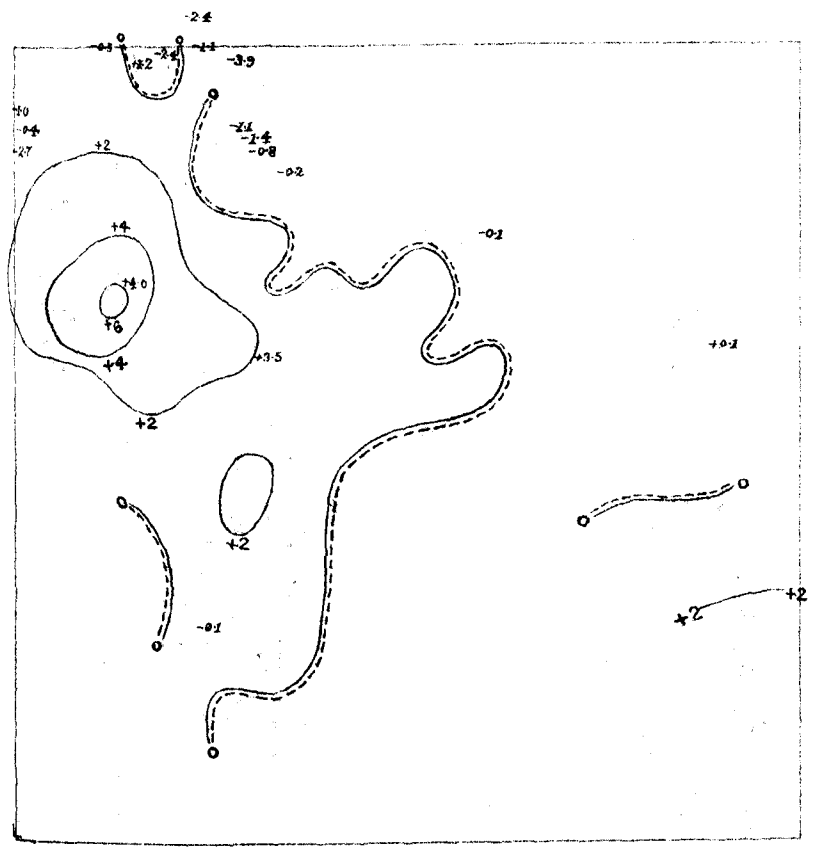
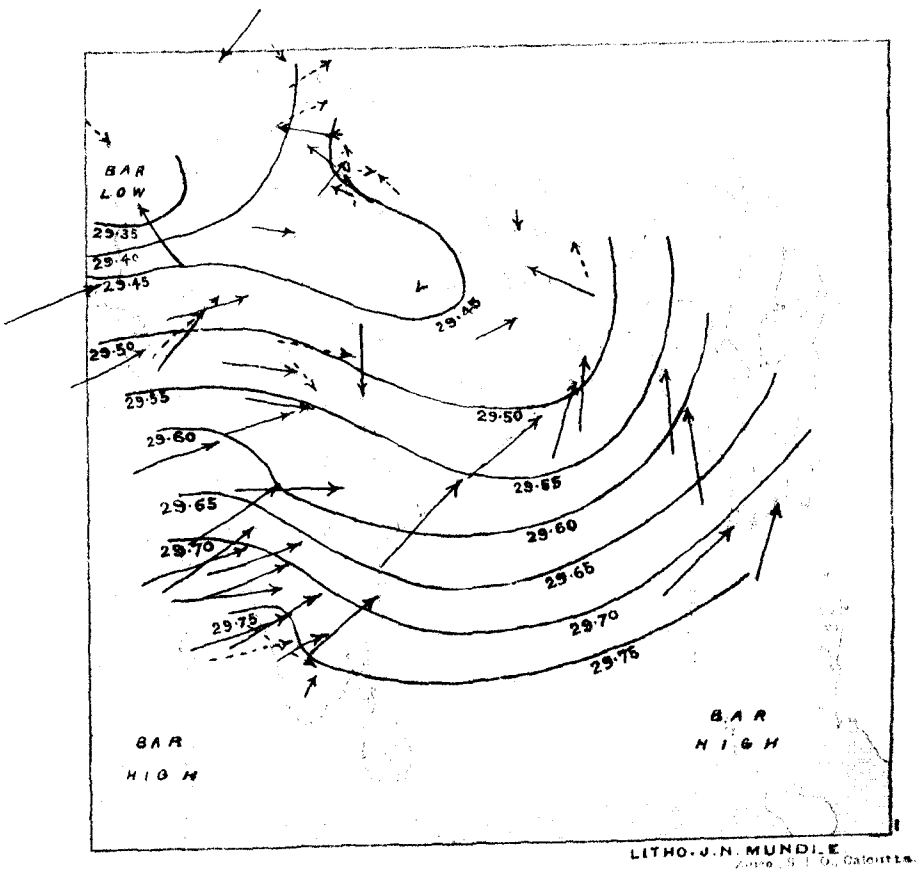


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF JULY 1902.



LITHO. J. N. MUNDLE
Survey of India Office, Calcutta.

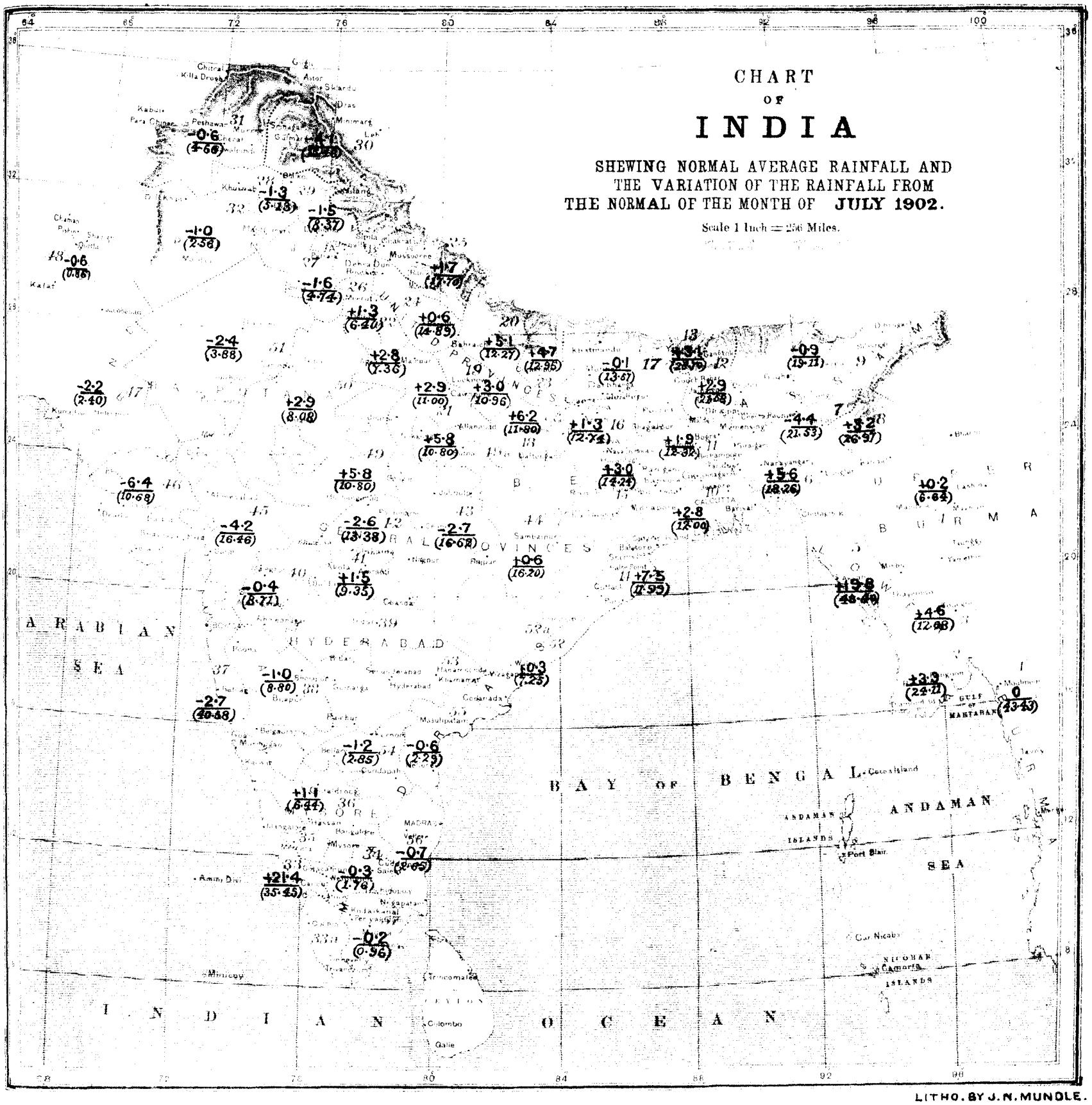
Explanation.

Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

The Chart is prepared in the same manner as the Monthly Charts which have hitherto appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value

Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India (182 in number), except those at the Hill Stations over 3,500 feet in Elevation. The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those where it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.



LITHO. BY J. N. MUNDLE.

Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable and useful means. The country is divided into 57 areas, over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both actual and normal for the month) have been calculated, and the numbers given in the centre of each division (usually with a + or − sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The normal average rainfall is also given below in smaller figures enclosed within brackets so that the percentage variation can be at once estimated. The name of the district can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim
2. Lower Burma Deltaic
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. United Provinces, East
19. South Oudh
20. North do.
21. United Provinces, Central
22. Do. do., West
23. Do. do., East Submontane
24. Do. do., West do.
25. Do. do., Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
33a Travancore
34. Madras, South Central
35. Coorg
36. Mysore
37. Konkan
38. Bombay Deccan
39. Hyderabad, North
40. Khandesh
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
49a Do. do.
50. Rajputana East, Central India West
51. West Rajputana
52. Madras, East Coast, North
52(a). Do. do. do. (a)
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, AUGUST, 1902.

INTRODUCTION.

THIS review of the weather in India during the month of August 1902 is based on observations taken daily at 8 A.M. at 226 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 63 stations. In the rainfall summary the rainfall data of the meteorological observatories and the rainfall statements of the month published by the Provincial Governments that had been received up to the date of the publication of the Review are utilized. A summary of the weather in the Bay of Bengal and the Arabian Sea, derived from information extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given.

Summary of the chief features of the weather in India and the Indian monsoon area, during the month of August 1902.

In the following summary some account is given of the conditions obtaining in India, and in the sea areas to the south, as well as in Arabia, Persia, the mountain ranges to the north-west and north of India, Turkestan, the Caspian and Trans-Caspian regions and Central Asia, so far as they seem to have a bearing on the weather of India; and an attempt is made to ascertain from the available data the nature of the actions at work in the various parts of the monsoon area. The statement of the data available for the areas outside India, which was given in the introduction to the Review for July, 1902, holds also for this month.

During the closing days of July, a depression from the head of the Bay was moving up the Gangetic Plain. On the 1st of August it was central near Agra, where the abnormal defect of pressure was about a fifth of an inch. At the same time pressure had fallen briskly at the head of the Persian Gulf, and was relatively low over a belt stretching from there eastwards through South Baluchistan, Sind and Rajputana to the centre of the United Provinces. In the Punjab, pressure had risen rapidly during the previous day, and on the 1st was in large excess in that area. On this day, also, pressure had risen very rapidly (·215″) at Chitral. It had also risen at Gilgit and Kashgar, but there the rise was only slight, while in Kashmir pressure had fallen slightly to briskly. At the same time pressure had given way slightly to briskly in Assam, Burma and South India.

The main actions on this day were, therefore, (1) a rapid rise of pressure in the Punjab and the hills to the north-west, and a fall of pressure in Kashmir, both the rise and the fall being probably conditioned by the north-eastward movement of an area of low pressure which shewed in the south-west of the Punjab on the previous day; (2) a fall of pressure in the Persian Gulf region, especially marked at the head of the Gulf, but not limited to that area; (3) the changes related to the movement of the depression in the Gangetic Plain.

The chief abnormal features of the pressure distribution were a large defect in the west of the United Provinces and a considerable to large excess in the Punjab. Elsewhere conditions were approximately normal. In South Arabia and on the African Coast pressure was in slight to moderate excess.

On the 2nd, the pressure changes within India were chiefly conditioned by the movement of the depression in the Gangetic Plain, which was now central near Meerut. The only important action in other parts of the monsoon

area was a rapid fall of pressure at Aden, a little to the north-east of which an area of low pressure seemed to be developing. Pressure was also giving way over the African Coast and in the west of the Equatorial Belt and was now in slight to moderate defect in the south and west of the Arabian Sea, the south of the Peninsula and in the Equatorial Belt, the defect being, however, probably more marked in the east than in the west of the Belt. Pressure was also in slight to moderate defect in the region covered by the depression in the Gangetic Plain. Elsewhere in India, and especially along a broad belt stretching westward from South-West Bengal across the head of the Peninsula through Sind and thence, probably, through the south of Baluchistan and Persia to Baghdad, pressure was in moderate excess, the excess being greatest over the head of the Peninsula and least in the Persian Gulf area. The winds on this day fell lighter on the West Coast and the rainfall decreased. On this day pressure was in large excess in East Siberia but was normal or in slight defect in the part of West Siberia denoted by Omsk and Barnaul, towards which a low pressure area seemed to be advancing from Eastern Europe.

On the 3rd, pressure rose over the whole of the monsoon area from Tashkent to Singapore and from Burma to the head of the Persian Gulf, the only exception being very slight falls at Baghdad, Aden, Perim and Zanzibar, due possibly to the continued development of the depression in South Arabia. The rise was most rapid in the north of the Punjab, where it exceeded a tenth of an inch, but was brisk over the whole of Persia, Sind, Rajputana and the south of the Punjab; it was slight elsewhere. It was probably in part at least connected with the filling up and disappearance of the depression in the Gangetic Plain, but besides this some much more widely extended action was probably also at work. Pressure was now in large excess over Lower Sind and in moderate to considerable excess over the greater part of India and Persia. It may also be noted that on this day pressure was in large to very large excess in South-East Europe and in the Trans-Caspian region, as far east as Tashkent, but was still in slight defect in West Siberia, where a low pressure area still shewed. Pressure was now in considerable defect in the low pressure area in South Arabia and normal or in slight defect in the Equatorial Belt and in the south of the Bay. In consequence of the excessive pressures in the north and north-east of the Arabian Sea and the abnormally low pressures in South Arabia, the isobars in the centre and west of the Arabian Sea ran on this day nearly north-east and south-west and the winds in that area were much more southerly than usual, while more northerly than usual in the east of the Arabian Sea.

By the 4th, the low pressure area in Eastern Europe had intensified considerably, the defect from normal at its centre, now a little to the north-west of Tobolsk, being probably about a third of an inch. Pressure had also fallen very rapidly at Omsk and the neighbouring stations, and rapidly in the north of the Punjab, but only slightly over Further Kashmir, while at Kashgar and Tashkent there was a rise. Pressure rose on this day in the Persian region, where a depression which shewed during the previous days had practically filled up. There was also a brisk rise in the Caspian region. Except in the north of the Punjab, the changes on this day were generally slight. The area of greatest excess of pressure was now a narrow belt stretching from Gujarat westwards and covering the greater part of the Persian Gulf area, over the whole of which pressure was about an eighth of an inch in excess. In the Indian Seas and in the Equatorial Belt pressure seemed to be now about normal, except near the Gulf of Aden, where pressure was still in moderate defect.

It is difficult to account satisfactorily for the rapid fall of pressure on this day in the North Punjab. It may have been, in part, conditioned by local causes, but the shift of the wind at Kabul from south on the 3rd to north-east on the 4th may have been an indication of the approach of a low pressure area from the west.

The changes on the 5th were everywhere small and unimportant, except at Bahrein, where there was a moderate fall of pressure, due probably to the northward advance of the depression in Central or South Arabia. Pressure was still about a tenth of an inch in excess over a belt stretching from Baghdad and the Persian Gulf eastwards over the head of the Peninsula, but in the extreme south of the Peninsula it was about normal.

The changes on the 6th were also generally slight, except in the Punjab and in the hills to the north and north-west, where pressure had risen briskly. Pressure had fallen at Omsk and was now over a fifth of an inch in defect there. At Tashkent pressure was over a fifth of an inch in excess. So far as can be judged from the available data, pressure seemed to be now in more or less considerable excess from normal over the greater part of Southern Asia, while normal or in defect in the Equatorial Belt. Pressure was very uniform on the West Coast and north-westerly winds prevailed over the east of the Arabian Sea and the greater part of the Peninsula.

On this day the abnormal easterly set of the wind directions in the Gulf of Aden and the south-west of the Arabian Sea seemed to indicate the existence of an area of low pressure in East Africa somewhere to the north of, or in the region of, the Equator.

On the 7th the changes were almost everywhere downwards, the fall extending from Tashkent and Kashgar to the south of the Indian region and the Equatorial Belt. The only rises reported were (*a*) at Omsk, probably due to the movement of the depression which shewed in that area on the previous day, and (*b*) in Burma, where there was a general slight recovery of pressure.

The fall was brisk in the Upper Sub-Himalayas, as also in Further Kashmir, where pressure was now in only slight excess. It was also brisk in Asiatic Turkey and in South Arabia, in the former area being probably due to the westward movement of a low pressure area which shewed in the West Persian area on the previous day, and in the latter, to the north-eastward movements of the depression in East Central Africa.

By the 8th the rise of pressure, which had on the 7th begun to show in Burma, had extended westwards and was now shewing over the greater part of India, the rise being brisk in the Bay area and slight elsewhere. In the west and north-west of the Punjab, Further Kashmir and Chitral, as also in Turkestan pressure was falling slightly to briskly, but was rising briskly in Persia and Arabia.

On the 9th, the rise was general over the whole of India, Persia and Arabia, except at Muscat, where the slight fall was probably due to the development of a depression in South-East and East Arabia. Pressure was, however, still falling slightly in Further Kashmir and at the stations to the north and north-west, but at Omsk the fall was rapid and pressure there now in moderate defect.

On the 10th, important changes occurred. Pressure fell over a tenth of an inch at Kashgar, Gilgit and at several stations along the line of the hills from the Punjab to Bengal. The fall was brisk over the Punjab generally and at Chitral and brisk to rapid in Further Kashmir, and was slight in other parts of the monsoon area, except at Aden and Zanzibar, where it was brisk. The data indicate that on this day the fall was continuous from Omsk to Zanzibar in the west of the Equatorial Belt and to Penang and Singapore in the east. Pressure was now in very large defect at Tomsk (over three-tenths of an inch), and from there southwards to the submontane areas in Upper India (where pressure was in moderate defect) the defect was probably continuous. This general fall diminished the excess of pressure obtaining over India, an excess of a tenth of an inch now shewing only at Chanda in the Central Provinces. Pressure was relatively low at Aden and Zanzibar and winds were light and irregular in direction in the centre of the Equatorial Belt, where the first traces of an irregularly cyclonic circulation seemed to be shewing.

By the 11th pressure had begun to rise at Tomsk, but was still falling briskly to rapidly in almost all parts of the monsoon area, except in Africa and South Arabia, and parts of North-East India where it was rising slightly. The fall was very rapid at Teheran (—·175″) and Ispahan (—·150″), rapid at Tashkent, brisk at Kashgar and in Further Kashmir, and rapid at Chitral, in the Punjab, Sind and West Rajputana, as also at most of the Persian Gulf stations. The fall equalled or exceeded ·150″ only at Teheran, Ispahan, and Jacobabad but was a tenth of an inch and over at Tashkent, Chitral, and all the Persian stations, except Muscat, as well as in the Punjab, Sind and West Rajputana.

The data are too scanty to fully elucidate the nature of this large and widespread change of pressure, but the available data make it probable that it was mainly conditioned by the movements of the low pressure area in Central Asia which was noted on the previous day. There seemed, in fact, to be two centres of depression, one in the region indicated by Tomsk and Irkutsk, where pressure was over a quarter of an inch below normal, the other in the south-east of Europe or in North Persia, where pressure seemed to be about an eighth of an inch in defect, while at Tashkent, between these two areas, pressure was in slight excess. It may be noted, however, that on this day pressure was about a fifth of an inch in defect in the West Punjab, while at Leh the defect was ·145″. Pressure was still in slight to moderate excess in the Upper Brahmaputra Valley and in Burma, as well as over the centre and north-east of the Peninsula, but was below normal in all other parts of the monsoon area. The defect was large in Upper India and slight in the extreme south of the Peninsula and the south of the Bay, but was moderate to considerable at the Seychelles and Aden and in the Persian region.

On the 12th, there was a rise of pressure, almost as widespread and general as the previous fall. The rise exceeded a tenth of an inch at Tashkent, but was only slight at Omsk, the one Siberian station for which data were on this day available. It exceeded a tenth of an inch everywhere in India north of a line passing due east from Kurrachee to Bengal and was greatest in the extreme north-west of the Punjab, where it exceeded three-tenths of an inch. At Chitral the rise of pressure was an eighth of an inch. Except in the Upper Assam Valley, where there was a slight fall of the barometer, pressure rose everywhere in India, the rise diminishing southwards, from three-tenths of an inch in the extreme north-west of the Punjab to under ·025″ in the extreme south of India. The changes in the Persian region, which were upwards everywhere except at Ispahan, were generally slight. Pressure was now in slight to moderate excess over the whole of India, except in Lower Burma and in Sind, where pressure was about normal or in slight defect. Pressure was, however, still low in South-East Europe (Baku, —·172″) and in West Siberia (Omsk, —·140″) and in the Persian region, where, however, the defect nowhere exceeded a tenth of an inch. The irregularly cyclonic circulation of the winds still shewed in the Equatorial region; the data, however, are very scanty, but seem to indicate that the centre of the action lay to the north of the Seychelles.

By the 13th pressure had risen very rapidly at Tashkent, Chitral, and in Upper Sind, and rapidly in Further Kashmir and at the mouth of the Persian Gulf. Pressure had, however, fallen slightly in North-East India and over the Bay area (except locally on the Burma Coast), and was steady or had fallen slightly at the head of the Persian Gulf, where, and at Baghdad, pressure was now in moderate to considerable defect. The changes on this day seemed to be conditioned by the filling-up of low pressure areas in Trans-Caspia and Sind, and by the westward movement of a shallow low pressure area which was apparently lying to the south-west of Muscat on the previous day.

Pressure was now in moderate to considerable excess over the greater part of India, the excess being greatest and exceeding an eighth of an inch in Sind, the West Punjab, and over the head of the Peninsula. It was still in slight defect in West Siberia, but was in slight excess in the Baikal region. In the depression area, at the head of the Persian Gulf, pressure was now about a tenth of an inch in defect. The winds in the Gulf of Aden on this day, as well as in the sea areas off East Arabia and at the mouth of the Persian Gulf, seemed to indicate an indraught to a low pressure area in South-East Arabia.

Winds were also light and irregular in the centre and south-east of the Bay, where pressure was now unusually uniform and gradients abnormally slight.

By the 14th pressure had fallen briskly in the Bay area, but in all other parts of India the pressure changes wete for the most part slight, and generally downwards.

In the Persian region pressure was generally rising, but was falling briskly at Aden, in consequence, apparently, of the development of the depression in South-East Arabia. It was also falling briskly at Zanzibar, where on this day there was a very light wind from east-north-east. Winds were blowing from very abnormal north-easterly directions on this day along the whole of the western half of the Equatorial Belt, except at the Seychelles, where they were blowing unusually strongly from the normal south-easterly direction. There were on this day some indications that the cyclonic whirl had continued its westward advance and was now north-west of the Seychelles.

The changes on the 15th were generally slight and unimportant, being generally upwards in North-East India and in the Bay area, and downwards in other parts of India. Pressure was rising in Central Asia and in West Siberia, and in that area readings were now in moderate to considerable excess. Pressure was, however, falling rapidly at Gilgit, and briskly at some Kashmir stations, but only slightly at others and at Chitral, and it is probable that these changes were due to local actions of little importance. In Persia and Arabia pressure was rising briskly at most stations.

Winds were irregularly cyclonic in direction in the north-west of the Bay, and pressure was relatively low in that area.

Winds were still irregular in direction in the Equatorial Belt, while at Zanzibar a very light wind was blowing from the north.

On the 16th pressure rose very rapidly in West Siberia, where it was now in very large excess (Barnaul, +·440″; Tomsk, +·392″). At Tashkent and Kashgar, however, pressure was falling slightly, but was rising slightly at Gilgit and in Kashmir, and along the line of the hills and in the submontane areas from the Punjab to Assam. Pressure was also rising slightly over the Bay area, but was again falling briskly at Aden, where another depression seemed to be forming. Pressure was rising rapidly in the Caspian region and briskly in North-West Persia. The only important actions on this day were those in West Siberia which were conditioned by the establishment of anticyclonic conditions in that area. The general rise of pressure over the Bay checked the development of the depression in that area.

On the 17th the changes were, in general, slight and unimportant. They were generally upwards over India, but generally downwards in the Upper Sub-Himalayas and in Kashmir, where the fall may have been related to the brisk fall which was reported from the West Siberian stations and from Kashgar and Gilgit.

On the 18th, the pressure changes were again for the most part slight. They were generally downwards, except in Burma, North-East Bengal and Assam, where pressure had risen slightly. The fall was most rapid in the north-west of the Punjab and Kashmir, where it exceeded a twentieth of an inch. But in Central Asia pressure was rising rapidly. In the Arabian and Equatorial regions pressure was either steady or rising slightly, while in North-West Persia the rise was brisk. Pressure was now in moderate defect in the south-west of the Bay area and in slight defect in the submontane regions of Upper India, but was in moderate to considerable excess elsewhere in India, as well as in the Persian region. In West Siberia readings were over half an inch in excess of normal, (Barnaul, +·568″; Omsk, +·536″; Tomsk, +·556″). It may be noted, however, that pressure was in moderate defect in the Baikal region, as indicated by the data for Tchita (−·092″). Pressure remained in slight defect in the Equatorial Belt, and a region of light irregular winds still shewed in the north-west of the Bay.

On the 19th, the changes were large and important. Pressure had fallen over the whole of India, except in Burma and along the line of the hills from Bengal to the North-West Punjab, where there was a slight rise. The fall was brisk off the Circars Coast, where a depression with a well marked centre was now shewing. It had also fallen briskly on the West Coast from Mangalore to Kurrachee, and briskly to rapidly over the whole of the Persian region, most markedly at the head of the Persian Gulf. Pressure was steady or rose slightly in the Equatorial Belt. In consequence of these changes pressure was now in moderate to considerable defect over the whole of India, except in Burma and North-East India, where pressure was still in slight to moderate excess. The abnormal defect was greatest in the west of the Bay near Cocanada and Vizagapatam, where it exceeded a tenth of an inch. In other parts of India, and generally over the Indian monsoon area, the variations from normal were slight. In Trans-Caspia, however, pressure was in considerable, and in West Siberia, in very large, excess.

On the 20th, pressure was rising at Kashgar, Gilgit Chitral, and in Kashmir, the Punjab and the western parts of the United Provinces, the rise being brisk at most stations and exceeding a tenth of an inch at Skardu, Dehra Dun and Roorkee. Pressure was steady or rose slightly in North-East India, Burma and the East Coast of the Peninsula. Elsewhere in India pressure had fallen briskly to rapidly, the changes being chiefly conditioned by the north-westward movement of the storm which was shewing off the Circars Coast on the previous day, and which was central in the east of the Central Provinces, where pressure was now over a tenth of an inch in defect. The changes in other parts of the monsoon area were generally downwards, but were slight and of little importance. At Aden pressure was now in considerable defect, but pressure was still in very large excess in Central Asia, from West Siberia to the Baikal region and was in moderate excess in the Punjab and along the line of the hills from the Punjab to North-East India, and in Assam and Burma.

On the 21st, the changes outside India were for the most part slight and unimportant, except at Aden, where pressure had fallen briskly and was now in large defect and to the north of which a low pressure area seemed to be again developing. Within India the changes were mainly conditioned by the movements of the storm which shewed in the east of the Central Provinces on the previous day and which was now central slightly to the south of Hoshangabad. The only change within India which was not connected with this storm was the brisk general fall of pressure over Burma which was most marked in Lower Burma and which seemed from the wind directions to have been due to the westward advance of a low pressure area

from the region of Siam. Pressure was still falling in West Siberia, although still in general excess in that area.

The chief changes on the 22nd were (1) a rapid fall of pressure in Lower Burma, where a fairly well-marked depression was now shewing, with an abnormal defect of pressure at its centre of about ·150″; (2) changes conditioned by the continued westward movement of the depression in the centre of India, which was now central near Ahmedabad; (3) a rapid fall of pressure at the mouth of the Persian Gulf, where a well-marked depression was now shewing; (4) the changes due to the slight intensification of the depression in the south of Arabia; and (5) a brisk to rapid fall of pressure in West Siberia, most marked at Omsk, where pressure was now in slight defect. Pressure was now in large defect in (1) Lower Burma, (2) Kathiawar, (3) South Arabia, and was in moderate excess in Bengal, and the east of the Central Provinces, and in the north of the Punjab. It may be noted that pressure was still in large to very large excess in the Baikal region.

On the 23rd, the continued development of the area of relatively low pressure in West Siberia had caused a very rapid fall in that region, and it is possible that the brisk fall of pressure which occurred on this day in Turkestan and Further Kashmir, as also along the line of the hills in Upper India, may have been connected with this. In Western India pressure had risen briskly, the rise having been most rapid near Ahmedabad, in consequence of the filling up of the depression in that area. In the Persian region, pressure had generally risen, the rise having been very rapid at Jask, and brisk at Bahrein and Bussorah. It was, however, still in moderate defect at the head of the Persian Gulf, as also in Arabia and over the Trades region. Within India the variations of the pressure from normal were generally slight, except in two areas, one in the Bay, where pressure was in moderate to considerable defect, and the other over Gujarat and Sind, where pressure was in slight to moderate defect.

On the 24th, pressure fell rapidly at Kashgar, Gilgit and Chitral and briskly to rapidly in Further Kashmir and the north of the Punjab, as well as in Upper Assam. The fall was also brisk to rapid in West Siberia where pressure was now in moderate to considerable defect. Within India, the changes were, with the exceptions above mentioned, entirely conditioned by the movements of the Bay depression, which was now central about 30 miles to the east of False Point, the abnormal defect of pressure at its centre being now over a fifth of an inch. Elsewhere in the monsoon area the changes were unimportant, the chief being a brisk fall at Jask and a brisk rise in South Arabia. Pressure was now in defect over the whole of India, the defect being greatest in the north-west of the Bay, where, as already indicated, it exceeded a fifth of an inch, and in the West Punjab and in Kathiawar, in both of which areas the defect was about a tenth of an inch. Pressure was still in moderate defect over the greater part of the Persian and Arabian regions, as also over the Equatorial Belt. Pressure was in slight excess in the Baikal region.

On the 25th, pressure fell very rapidly at Baku, rapidly at Teheran and briskly in other parts of the Caspian, Trans-Caspian and Persian regions. The fall in the South Persian region was, however, probably due in part to the continued development of a low pressure area which was shewing in the region of the Persian Gulf on the previous day. At Barnaul and Tomsk, on the other hand, pressure was rising very rapidly (the rise exceeding a fifth of an inch at both stations), but was reported to have fallen at Omsk, if the data are correct. A moderate rise was reported at Kashgar, Gilgit, Chitral and some of the Kashmir stations and a considerable rise in the north of the Punjab. It may be noted, however, that pressure had fallen briskly at Irkutsk, and was steady or had fallen slightly at some of the Kashmir stations. Within India the changes were generally upwards, except in the area to which the Bay depression had now advanced, where pressure had fallen rapidly.

Pressure had again fallen in South Arabia and was now in very large defect over the whole of South and South-East Arabia and at the mouth of the Persian Gulf.

On the 26th, the changes outside India were upwards everywhere except in the Caspian and Trans-Caspian regions, where pressure was still falling slightly, and in the Trades region, where pressure was falling slightly. Within India the changes were generally upwards, except locally over the head of the Peninsula in the region to which the Bay depression had now moved and in the Upper Sub-Himalayas. Pressure had also begun to fall in Lower Burma and the Andaman Sea, where another depression seemed to be forming.

Again, on the 27th, the pressure changes were generally upwards, the only exceptions being a brisk fall reported at Omsk in West Siberia and a moderate fall in Central and North Persia. Within India the pressure changes were conditioned by the continued movement of the depression in that area which was now central in the east of the Central India Plateau. Under this general rise he depression in Lower Burma failed to develop and was shewing only as an area of slightly defective pressure over the Andaman Sea.

The changes on the 28th were generally of the same character as those on the 27th, namely, a widespread rise extending over all parts of the reporting area, except West Siberia where pressure was still falling. The low pressure area in Lower Burma had developed slightly and the depression in Central India had moved westward and was now central between Kotah and Pachpadra.

On the 29th, however, pressure fell briskly to rapidly in Trans-Caspia, Turkestan, Further Kashmir and generally in Upper India and slightly to briskly elsewhere. The only Extra Indian stations reporting a rise of pressure on this day were Teheran and Bussorah. As no data for Siberia are available for this day, it is impossible to determine the true nature of this large downward movement. It may, however, have been to some extent conditioned by the development of a depression which shewed on the 30th near Omsk, with an abnormal defect of pressure at its centre of about ·800″. It may be noted, however, that on the 30th the pressure changes, although generally downwards, were for the most part slight. As on the 29th, it is probable that the available data are too scanty to enable the character of the pressure changes at this time to be fully elucidated. The depression in the Bay which had

been slowly developing during the previous few days seemed, on the 30th, to have a definite centre about 250 miles east of Gopalpur.

On the 31st, pressure was rising almost everywhere, the rise being most rapid and exceeding a quarter of an inch at Omsk. The rise was also rapid in the north of the Punjab, and pressure changes were upwards over the whole of India, except in the depression area in the Bay, the centre of the depression now shewing about 100 miles east of Cuttack. The rise was also rapid at the head of the Persian Gulf and at Chitral.

Summary.—The following summarizes the more important actions which affected the weather and the pressure distribution over India during the month.

Conditions were approximately normal during the first two days of the month and moderate rain was fairly general over the whole country. On the 3rd, pressure rose very generally over the whole monsoon area, from Tashkent to Singapore and from Burma to the head of the Persian Gulf. Although the rise was most rapid in the north of the Punjab, it was probably too widespread and general to have been caused by merely local actions in that area and seems to have been due to some much wider action. With this rise of pressure the monsoon currents fell off in strength and a general break in the rains set in, which lasted in most districts till the 19th or 20th. The changes duringt he 4th, 5th and 6th were generally slight and unimportant, and on the 6th, pressure was in considerable to large excess over the greater part of the Indian region, as well as over Persia.

A widely extended fall shewed on the 7th, which seemed to be connected with three main centres, one in Further Kashmir, which affected the conditions as far as Kashgar to the north and along the line of the hills in the Punjab to the south, the second in the Persian Gulf area, and the third in South Arabia. The actions in each centre were, however, comparatively local and transient in character, for during the next two days pressure rose generally. It continued to fall, however, in Further Kashmir, being probably conditioned by a large downward movement of pressure which at this time shewed in West Siberia. During the 10th and 11th, there was a widespread and general fall, most marked in the Central Asian region and in North Persia, but shewing over practically the whole of the monsoon area. The area of greatest defect from normal seemed on the 11th to lie in the part of Central Asia indicated by Tomsk and Irkutsk, at both of which stations the abnormal defect was over a quarter of an inch; but over the west of the Punjab, and possibly also in North Persia, pressure was nearly two-fifths of an inch in defect. Pressure was, however, still in moderate excess over the east and centre of the Peninsula, as well as in North East India.

During the next two days pressure rose very generally, the rise being most rapid in the extreme north of the Punjab, but brisk to very rapid over the greater part of the area lying to the north and north-west of India. It is probable that this rise, as also the general fall on the 10th and 11th, were largely, if not wholly, conditioned by the movements of a low pressure area in the Central Asian region.

From the 14th to the 18th the changes within India were slight and of little consequence. On the 19th, a depression developed in an area of comparatively uniform pressure and light, variable winds, which had shewed in the Bay during the preceding days; during the next four days it advanced in a west-north-westerly direction from the Circars Coast over the head of the Peninsula, giving good rain to the districts in its track. On the 21st, the first traces of the development of another low pressure area shewed in Lower Burma, which by the 23rd or 24th had developed into a depression with a well-defined centre. This storm subsequently moved in a track almost parallel with that of the preceding storm, but slightly farther north. It filled up in Western Rajputana on the 31st. During the last twelve days of the month the pressure changes within India were almost entirely conditioned by the movements of these two storms. A third depression began to develop over the Bay on the 27th or 28th and by the end of the month was shewing as a storm with a well defined centre off the Orissa Coast.

The features of the weather of the month were, therefore, (1) the retreat of the monsoon currents from the greater part of the Indian region during the first week of the month and the establishment of a break in the rains, which lasted till almost the end of the third week; (2) the development of two cyclonic storms in the Bay, and their subsequent advance in a west-north-westerly direction over the head of the Peninsula to Gujarat or Rajputana during the last eleven days of the month.

It may be noted, that pressure was almost continuously below normal throughout the month at the Seychelles and at Zanzibar, the defects from normal averaging —·033″ at the former, and, —·040″ at the latter, station. Pressure was normal or in only slight defect at the Trades stations from the 1st to the 9th, but fell briskly in that area on the 10th, and continued in moderate defect till the 16th or 17th, when it began to rise and continued to rise slowly till the 19th, when it was practically normal. It thereafter fell slowly and irregularly till the 26th, when it was in considerable to large defect at both stations (Seychelles, —·101″; Zanzibar, —·067″), after which it began to rise slowly, but was still in defect at the end of the month.

Comparing with this, the variations of the wind strength in the Arabian Sea, it may be noted that the mean wind force in the Arabian Sea was about normal during the first two days of the month, in slight to moderate defect from the normal from the 3rd to the 7th, approximately normal from the 8th to the 10th, in large defect from the normal from the 12th to the 17th, about normal from the 20th to the 24th, after which it fell off again and was in large defect for a few days about the 27th, rising again to about normal at the end of the month. Although it cannot be maintained that there is a direct connection between the mean wind strength in the Arabian Sea and the pressure variations at the Seychelles and Zanzibar, it is interesting to note that generally the mean wind strength over the Arabian Sea fell off, as the pressure diminished at the Trades stations and increased as the pressure rose. Thus, at the beginning of the month, both the average wind strength and the pressure at the Trades stations was approximately normal, while at the end of

the second week, when pressure was unusually low in the Equatorial region, the winds were also much below normal strength. At the end of the third week, as pressure rose in the Equatorial Belt, the mean wind st rength also increased, falling off again with the pressure about the end of the fourth week of the month. Also, on the mean of the month, both the pressure in the Equatorial Belt and the wind strength in the Arabian Sea were below their normal values.

In the Bay area, the variations of the intensity of the air movement in general followed the variations in the Arabian Sea, agreeing closely during the first three weeks but differing somewhat during the last ten days of the month, in consequence, probably, of the influence of the cyclonic storms which were generated in the Bay during that period.

It is interesting to note the effect produced by the various abnormal features of the month and to trace their action on the weather of India.

Broadly speaking, the main abnormal features during the first three weeks of the month were, on the one hand, an excess of pressure over the head of the Peninsula, the north and north-east of the Arabian Sea, land, to some extent, over the regions surrounding the Gulf of Oman; and, on the other hand, a general defect of pressure over the greater part of South Arabia, North-East Africa, and the west of the Equatorial Belt. The effect of these abnormal features of the distribution was to cause the isobars in the Arabian Sea to slope much more towards the north and to meet the West Coast of the Indian Peninsula not only much farther north than usual, but also at a much more acute angle. The result of this was to give to the winds in the west of the Arabian Sea an abnormally strong southerly component, they seeming to be under the influence of an abnormal low pressure area in South and South-East Arabia and forming part of the cyclonic circulation round it. In the east of the Arabian Sea, on the other hand, the acute angle at which the isobars cut the coast line was emphasized by the unusually sharp trend of the isobars southwards, as soon as they entered the land area. Consequently in passing from the centre to the east of the Arabian Sea the winds veered sharply round from south-west to north-west or even north-north-west, at the same time losing a considerable part of their velocity. They hence failed to advance over the country in the normal direction as vapour-laden currents, and it may be noted that their return to normal directions occurred only when these abnormal features disappeared.

At the same time it is almost certain that the abnormal conditions were not confined to the Indian land areas. The data, although scanty, indicate unmistakeably that during the period of the break conditions were very anomalous in the Equatorial Belt and probably even farther south. Thus, on the 5th, in consequence of the unusually marked extension southwards of the north-westerly winds in the neighbourhood of the Maldives and generally in the east of the Arabian Sea, very abnormal north-easterly winds shewed in a region a little south of the Equator, in Long. 65° E., where normally the winds are south-east. This feature seemed to disappear during the next three days, but began to shew again on the 9th and was very strongly marked on the 10th, when the winds at the Equator in Long. 68° E, were due north, while a little to the west they were due south. It seems probable that on the 10th a feeble low pressure area with an irregularly cyclonic circulation round it shewed with its centre a little north of the Equator in Long. 64° E.; by the 11th, its centre seemed to have moved a little to the south-west, and during the next three days it moved slowly westwards. During the whole of this period abnormal easterly or north-easterly winds held over the greater part of the Equatorial Belt and effectually checked the advance of the South-east Trades across the Equator, the winds in the Arabian Sea meanwhile being, to a large extent, conditioned by the pressure conditions obtaining in the land areas to the north and in no way forming the continuation of the Trades current.

JOHN MURRAY.

Atmospheric Pressure.

The mean 8 A.M. pressure of the whole Indian land area was ·009″ above the normal, an increase of ·026″ since July, in which month pressure was ·017″ in defect. This large rise of pressure, relatively to the normal pressure conditions of the period, was probably directly related to the weakness of the monsoon currents and indicated less ascensional movement than usual over India.

Pressure was, relatively to the general condition, in defect over Ceylon, the greater part of the Peninsula, Tenasserim, Lower Burma, Arakan, Upper Assam and the northern and western districts of the United Provinces. The local variations were more than ·02″ in amount in Malabar, Ceylon and a part of the Carnatic and of the Burma Coast, and exceeded ·030″ at the stations for which data are given below:—

STATION.	Variation from normal of mean 8 A.M. pressure of August, 1902.	Pressure anomaly, August, 1902.
	″	″
Colombo	—·026	—·035
Calicut	—·023	—·032
Mangalore	—·022	—·031

Pressure was, on the other hand, in local excess over nearly the whole of Extra-Tropical India, and in Central and Upper Burma. The positive anomalies were small at the great majority of stations in this area, exceeding ·02″ in amount only at the four stations named below:—

Station.	Variation from normal of mean 8 A.M. pressure of August 1902.	Pressure anomaly, August, 1902.
	″	″
Khushab	+·041	+·032
Sutna	+·034	+·025
Allahabad	+·033	+·024
Indore	+·030	+·021

In consequence of the excess of pressure in Northern India and the defect in the Peninsula gradients were less steep than usual in August, as is shown below:—

Range of pressure between Ceylon and Upper Sind.		Baric gradient between Colombo and Bombay.		Baric gradient between Colombo and Saugor Island.	
Actual, August 1902.	Normal, August.	Actual, August, 1902.	Normal, August.	Actual, August, 1902.	Normal, August.
″	″	″	″	″	″
·306	·340	·089	·118	·220	·260

The monsoon trough of low pressure occupied a somewhat abnormal position, its western extremity lying further south and the eastern and central portions further north than usual in August. The axis of the trough hence ran from Midnapur through Gaya, Lucknow, Meerut and Sirsa to Mooltan.

The pressure variations from the normal at the hill stations varied little from those at the neighbouring plains stations and the significance.

The following gives data for ten pairs of stations in illustration:—

Hill station.	Variation from normal pressure, August, 1902.	Plain station.	Variation from normal pressure, August 1902.	Vertical pressure anomaly (Hill–Plain).
	″		″	″
Quetta	+·031	Jacobabad	+·008	+·023
Leh	+·023	Lahore	+·017	+·006
Murree	+·010	Peshawar	+·025	—·015
Simla	+·030	Ludhiana	+·010	+·020
Chakrata	+·015	Roorkee	+·008	+·007
Ranikhet	+·018	Bareilly	+·007	+·011
Darjeeling	—·003	Dhubri	+·012	—·015
Pachmarhi	+·015	Hoshangabad	+·023	—·008
Mount Abu	+·015	Deesa	+·011	+·004
Wellington	—·001	Coimbatore	—·005	+·004

The pressure conditions varied to an important extent from the normal in Persia, Arabia, East Africa and the Indian Ocean, pressure being in moderate to considerable defect in all these areas, except at the head of the Persian Gulf, where it was above the normal.

The following data illustrate these features:—

Station.	Variation from normal of mean 8 A.M. pressure of August, 1902.
	″
Bushire	+·029
Jask	—·043
Baghdad	—·028
Aden	—·060
Perim	—·021
Zanzibar	—·040

The mean pressure distribution of the month in India was hence characterized by the following features:—

(1) The mean pressure of the whole Indian land area was ·009″ higher than usual.

(2) Pressure was locally in defect over Ceylon, the greater part of the Peninsula, Lower Burma, Tenasserim, Arakan, Upper Assam and the northern and western districts of the United Provinces. The negative anomalies were largest in amount in Malabar, Ceylon, East Madras and a part of the Burma Coast, where they ranged between ·02″ and ·035″.

(3) Pressure was, on the other hand, in local excess over nearly the whole of Northern and Central India

and Upper and Central Burma, the excess, however, exceeding ·02″ only at Khushab (+·032″), Sutna (+·025″) Allahabad (+·024″), and Indore (+·021″.)

(4). The vertical pressure anomalies were small and of little importance.

Barometric depressions and cyclonic storms of the month.

The most important feature of the pressure conditions on the 1st of the month was a feeble cyclonic storm * which lay over the western districts of the United Provinces. This disturbance advanced northwards and broke up at the foot of the Kumaon Himalayas during the next thirty-six hours. The pressure distribution was very abnormal on the 3rd, on which day pressure was in moderate to considerable excess over the whole of Northern and Central India and the North Deccan, normal in the South Deccan, the Carnatic and Burma, and in defect to a slight extent in Malabar and Ceylon. Gradients were hence much less steep than usual, more especially in the West Coast districts where the range of pressure was barely a twentieth of an inch. The monsoon currents both in the Arabian Sea and the Bay of Bengal were below their normal intensity, and there was but little rain falling over the greater part of the area usually dominated by the Bombay current. Moderate rain was, however, being received in Burma and North-East India. Pressure increased slowly in Burma and Southern India on the 4th, and diminished over the remainder of the country. An important effect of these changes was to displace the monsoon trough of low pressure northwards to the north of the Gangetic Plain. The changes of pressure were small but irregular on the 5th and 6th and introduced no important modifications in the general distribution. Pressure gave way over the whole of India during the next 24 hours and on the morning of the 7th was in excess to the north of the parallel of 16° N. and in defect over the remainder of the country. The excess was largest over Gujarat where it averaged a tenth of an inch and the defect largest in Ceylon ('08″). As a result of this distribution abnormal north-westerly winds obtained over the greater part of the Peninsula and weather was fine with only a few local thundershowers in that area as well as in North-Western India. Pressure increased slightly on the 8th and 9th but fell briskly to rapidly during the next two days and was on the 11th more or less below the normal in Northern India and the south of the Peninsula, but was still in excess in the intervening area. The excess was small in amount except in Orissa, Ganjam and the neighbouring districts where it slightly exceeded a twentieth of an inch. The defect, on the other hand, varied between a tenth and a seventh of an inch over the greater part of North-Western India and was absolutely greatest in the West Punjab where it averaged nearly two-tenths.

The following variation data for the larger provinces indicate the abnormal character of the pressure conditions obtaining on this day:—

PROVINCE OR DIVISION.	Variation of mean pressure from normal at 8 A.M., of 11th.
	"
Burma	+·017
Assam	+·004
Bengal	+·007
Orissa	+·067
Bihar	—·046
Chota Nagpur	+·036
United Provinces of Agra and Oudh	—·093
Punjab	—·158
Sind	—·125
Rajputana	—·061
Gujarat	—·031
Central India	+·003
Central Provinces	+·044
Berar	+·046
West Coast	+·001
Bombay Deccan	+·025
Mysore	+·011
Madras Coast	+·028
Madras Deccan	+·041
South India	—·003

Gradients were hence remarkably steep over Northern India.

The trough of low pressure ran from the West Punjab to Bihar and very strong westerly winds obtained over the Gangetic Plain and Central India. Although gradients were unusually steep in Northern India, they were slighter than usual over the Peninsula, and the winds there were considerably below their normal strength, as also over the neighbouring seas. Weather was fine over the whole of India with the exception of Bengal and Assam where heavy rain was falling. A rapid rise of the barometer began on the 12th and continuing during the next 24 hours

*A complete history of this storm will be found in the July Weather Review.

over the greater part of India caused a considerable alteration in the relative distribution so that on the 13th pressure was almost everywhere above the normal, the excess being least and insignificant (about ·01″) in Malabar and greatest in Sind, the Punjab, South-West Rajputana and the Central Provinces where it ranged between ·13″ and ·15″. Weather was showery on this day in Burma and North East India but over the greater part of the interior of India the break in the rains which set in on the 3rd still continued.

A general decrease of pressure occurred during the next three days, which reduced the prevailing excess very considerably and slightly increased the pressure gradients.

The following statement gives data showing the character and amount of the change during this period :—

PROVINCE OR DIVISION.	Variation of mean pressure from normal at 8 A.M. of 13th.	Variation of mean pressure from normal at 8 A.M. of 16th.	Change from 13th to 16th.
	″	″	″
Burma	+·001	+·017	+·016
Assam	+·010	+·012	+·002
Bengal	+·036	+·021	—·015
Orissa	+·095	+·027	—·068
Bihar	+·033	+·030	—·003
Chota Nagpur	+·090	+·038	—·052
United Provinces of Agra and Oudh	+·058	+·015	—·043
Punjab	+·099	+·034	—·065
Sind	+·133	+·045	—·088
Rajputana	+·126	+·067	—·059
Gujarat	+·117	+·061	—·056
Central India	+·127	+·056	—·071
Central Provinces	+·125	+·039	—·086
Berar	+·130	+·029	—·101
West Coast	+·048	—·015	—·063
Bombay Deccan	+·095	+·015	—·080
Mysore	+·046	—·012	—·058
Madras Coast	+·055	+·003	—·052
Madras Deccan	+·068	—·016	—·084
South India	+·025	—·005	—·030

The data indicate that the only districts in which pressure departed to any important extent from the normal on the 16th were Gujarat, Central India and Rajputana.

With the diminution of the excess of pressure the abnormal northing in the winds over the Peninsula disappeared and showers recommenced in the centre and south of that area. Rain continued to fall during this period in Burma, Bengal and Assam, but was very light.

The pressure changes were somewhat irregular on the 17th and made no appreciable change in the general distribution. Pressure gave way generally on the 18th and 19th and on the latter day was in general defect in India, by amounts increasing from about ·02″ on North-Western and Central India to ·12″ on the Circars Coast.

The following table giving the variations of pressure on the 18th and 19th illustrates the change during this period :—

PROVINCE OR DIVISION.	Variation mean pressure from normal at 8 A.M. of 18th.	Variation of mean pressure from normal at 8 A.M. of 19th.	Change from 18th to 19th.
	″	″	″
Burma	+·030	+·041	+·011
Assam	+·017	+·023	+·006
Bengal	+·023	+·009	—·014
Orissa	+·001	—·043	—·044
Bihar	+·009	+·008	—·001
Chota Nagpur	+·021	—·016	—·037
United Provinces of Agra and Oudh.	—·013	—·002	+·011
Punjab	—·016	—·013	+·003
Sind	+·044	—·035	—·079
Rajputana	+·038	—·010	—·048
Gujarat	+·052	—·028	—·080
Central India	+·026	—·014	—·040
Central Provinces	+·018	—·033	—·051
Berar	+·013	—·019	—·032
West Coast	—·013	—·065	—·052
Bombay Deccan	+·016	—·035	—·051
Mysore	—·020	—·067	—·047
Madras Coast	—·037	—·083	—·046
Madras Deccan	—·022	—·064	—·042
South India	—·023	—·062	—·039

The chief effect of the changes of this period was to displace the eastern half of the trough of low pressure considerably to the south and on the 19th it stretched eastwards from the West Punjab to the central districts of the United Provinces and thence south-eastwards to the Orissa and Circars Coast.

Gradients were steeper than usual over the Bay and moderate to strong winds with rainy, squally weather now prevailed in that area. The Arabian Sea current was still below its normal August intensity but was increasing and humid winds and rainy weather were being re-established over the Deccan and Central India. At this time a depression was in process of formation off the Ganjam Coast at the eastern extremity of the trough of low pressure. It developed later into a well-formed cyclonic storm, of which the following is a complete history.

Cyclonic storm of the 19th to the 23rd August.—As stated above, pressure was below the normal over nearly the whole of India on the 19th, the defect being largest on the Circars Coast, where it averaged about an eighth of an inch in amount. Pressure was, on the other hand, in slight to moderate excess in Burma, Assam and North Bengal. In consequence of this distribution, the Bay current was determined chiefly to Bengal and Orissa while the Bombay current was directed eastwards across the Deccan towards the west of the Bay. The interaction between the two currents initiated a storm which formed the chief feature of the weather during the next five days.

The following data extracted from the logs of vessels indicate the character of the weather in the western half of the Bay on the morning of the 19th :—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer (corrected).	WIND.		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Terrier* .	5 43	87 54	29·825	SW	5	Moderate sea and rain showers.
S.S. *Bengal* .	5 56	88 23	·820	SW	4	Fine.
S.S. *Onipenta* .	5 59	81 01	·810	SW	4	Fine; noon overcast.
S.S. *Nankin* .	5 59	83 35	·803	WSW	5	Cloudy.
S.S. *Dongola* .	6 28	81 57	...	SW	5	Moderate sea and cloudy.
S.S. *Aktar* . .	6 52	81 41	·801	SW	5	Strong sea; 8 P.M. heavy rain squalls.
S.S. *Dunolly* .	12 28	84 21	·647	SW	4	Showers of rain; midnight squally.
S.S. *Shahjehan* .	Madras		·663			Overcast.
S.S. *Malvern*	14 01	85 05	·629	SW	5	High sea and cloudy; noon continuous heavy rain.
S.S. *Ujina* . .	14 11	85 08	·620	SW	6	Rough sea and heavy continuous rain.
S.S. *Schonfels* .	15 00	82 23	·593	NW	5	
S.S. *Rajpootana* .	15 10	81 23*	·620	SW	5	Moderate sea and fine; noon overcast.
S.S. *Caffsman* .	16 22	86 09	...	SW	2	Heavy rain and smooth sea.
S.S. *Mahratta*	17 05	86 23	·596	SSW	6	Moderate sea and heavy squalls; 4 P.M. hard squalls of wind and rain.
S.S. *Nizam* . .	Vizagapatam		·532			Midnight slight rain.
S.S. *Clan Monroe* .	17 50	87 02	·564	E	2	Occasional heavy rain; midnight heavy rain squall.

* Noon position.

These observations show that on this date winds were distinctly cyclonic in direction in the west of the Bay although still of moderate intensity.

This is borne out by the following observations taken on the Madras and Orissa Coasts:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	″	″	″				Inches.	
Balasore .	29·554	—·046	—·039	E	1	4	0·84	
False Point.	·562	—·030	—·044	SE	5	7	0·09	Wind variable.
Cuttack .	·552	—·047	—·047	ESE	2	5	0·08	
Puri .	·534	—·063	...	Calm	6	8	0·55	Sea smooth.
Gopalpur .	·535	—·054	—·063	NNE	6	10	0·88	
Waltair .	·529	—·081	—·112	NE	8	10	0·22	Sea smooth.
Cocanada .	·537	—·071	—·122	SW	9	9	0·03	
Masulipatam	·615	—·032	—·074	W	9	10	1·32	Thunder.
Nellore .	·668	—·003	—·050?	WNW	10	10	0·19	Drizzling.

The whole of the available information hence establishes that a well-defined depression existed on this day over the west of the Bay in the neighbourhood of the Circars Coast the centre of which was probably in about Lat. 17½° N and Long. 86° E.

20th August.—The depression in the Bay had advanced rapidly in a north-westerly direction during the previous twenty-four hours, and at 8 A.M. of this day covered the eastern half of the Central Provinces where pressure had fallen briskly to rapidly. The following observations indicate its position and character at that hour.—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	″	″	″				Inches	
Gopalpur .	29·547	+·012	—·055	SW	16	3	0·07	Sea rough.
Cuttack .	·583	+·031	—·021?	Calm	2	8	0·80	Showery.
Raipur .	·513	—·047	—·102	SE	...	8	0·22	Raining.
Sambalpur .	·549	—·024	—·064	S	4	5	0·59	
Chaibassa .	·562	—·008	—·019	E	1	5	0·62	Showery.
Ranchi .	·565	—·005	—·037	ESE	11	8	0·07	,,
Benares .	·573	+·007	—·012	E	5	6	0·08	Thunder.
Allahabad .	·575	—·008	—·009	ENE	10	9	0·02	
Sutna .	·549	—·024	—·043	NNW	4	4	0·93	
Nowgong .	·551	—·002	—·042	NE	1	10	...	
Saugor .	·546	—·036	—·065	E	7	8	...	
Hoshangabad	·579	—·052	—·082	SW	4	10	0·17	
Pachmari.	...	—·071	—·104	Calm	8	10	1·81	Thunder.
Jabbulpore .	·521	—·044	—·090	ENE	4	7	0·18	Showery.
Seoni . .	·536	—·069	—·096	NNW	8	8	0·33	
Nagpur .	·535	—·096	—·118	WNW	9	10	1·41	Showery.
Chanda .	·580	—·051	—·091?	WSW	8	10	0·60	Drizzling.

The storm was, as on the previous day, a large diffused disturbance of slight intensity, but was influencing the winds over a large area, including North-Eastern India, the Central Provinces, Central India and the Deccan. The centre of the cyclonic circulation was probably in about Lat. $21\frac{1}{2}^\circ$ N and Long. $80\frac{3}{4}^\circ$ E and hence about 430 miles to the north-west of its position on the 19th.

The Bengal current was at this time somewhat stronger than usual and had given moderate rain in Bengal and Assam. The Bombay current was of about normal strength and was giving moderate rain to the Central Provinces and the Deccan. Weather continued fine over North-Western India.

21st August—Pressure had increased briskly to rapidly in Orissa, West Bengal and the eastern districts of the Central Provinces and had decreased to a moderate extent in the west of the Central Provinces and the neighbouring districts of Central India and Khandesh, to which the storm had now advanced. The following gives 8 A.M observations at stations within the storm area :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to A.M. reducd to onstant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Nowgong .	29·546	—·005	—·053	SE	3	7	0·05	Showery.
Jhansi .	·556	—·008	—·043	SE	8	4	0·24	Showery.
Kotah .	·551	—·011	...	E	5	8	...	
Neemuch .	·513	—·078	—·137	WSW	9	10	1·43	
Indore .	·542	—·060	—·125	NE	7	10	0·54	Showery.
Khandwa .	·528	—·062	—·150	NW	8	10	0·47	
Akola .	·536	—·036	—·153	SW	9	10	2·20	
Amraoti .	·554	—·014	—·121	S	18	10	1·06	Showery.
Hoshangabad	·538	—·041	—·122	SW?	2	10	0·34	
Jubbulpore .	·543	+·022	—·076	ESE	3	6	0·34	Showery.
Saugor .	·546	...	—·078	ESE	10	9	1·10	

These observations when charted show that the storm was central to the south of Hoshangabad in about Lat. $22\frac{1}{2}^\circ$ N. and Long. $77\frac{3}{4}^\circ$ E., and had hence advanced at the rate of about 9 miles an hour during the past day. Pressure was about '15" in defect in the central area, and the storm was hence slightly deeper than on the two preceding days. Pressure was in moderate excess in Bengal and the winds had fallen off considerably over the north of the Bay, an indication that the indraught to the storm across the Bengal and Orissa Coasts was diminishing in intensity.

The Arabian Sea current, on the other hand, had intensified and given a moderately heavy burst of rain to the Central Provinces, Berar, Khandesh, Gujarat and the neighbouring districts of Central India. Numerous showers had occurred in Bengal and Orissa, but there had been no rain of importance in the Gangetic Plain.

22nd August.—Pressure had diminished slightly in Gujarat, Sind and the western half of Rajputana, and had increased briskly to rapidly in the Central Provinces, Central India and the Deccan. The storm had travelled about 290 miles in a north-westerly direction and at 8 A.M. of this day was central nearly midway between Udaipur and Ahmedabad in about Lat. $23\frac{1}{2}^\circ$ N. and Long. $73\frac{3}{4}^\circ$ E. The central area defined by the isobar of 29·55" was oval-shaped, the longest diameter running north-west and south-east.

The following observations indicate its position at 8 A.M. :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Ahmedabad .	29·529	—·032	—·159	NW	3	10	0·24	
Udaipur .	·541	—·012	...	ENE	2	9	1·35	Continuous rain.
Deesa . .	·530	—·034	—·132	NW	5	10	0·14	Wind variable.
Mount Abu .	...	—·043	—·105	SE	11	10	0·48	Showery.
Jodhpur .	·556	—·001	...	NE	3	6	1·80	Thunderstorm.
Jacobabad .	·535	—·003	—·004	Calm	0	10	...	
Kurrachee .	·544	—·056	—·076	W	15	8	...	
Hyderabad .	·528	—·026	—·048	SE	9	9	...	
Bhuj . .	·567	—·002	—·078	WNW	13	10	0·31	
Rajkot .	·572	—·027	—·117	SW	17	10	2·32	Continuous rain.

Pressure was about a sixth of an inch below the normal near the centre, and it was hence a shallow disturbance. Winds were cyclonic in direction, although feeble, over Northern and Central India. The indraught across the Kathiawar and Konkan Coasts had given moderate to heavy rain in Gujarat, Kathiawar, Khandesh and the western and central districts of the Central Provinces and of Rajputana.

The following gives the more noteworthy falls recorded in these areas:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 22nd.
		Inches.
Surat	Pardi	9·40
„ Agency	Dharmpur	9·18
Surat	Valod	8·70
Broach	Broach	8·35
Surat	Balsar	8·25
„ Agency	Bansda	7·94
Broach	Hansot	7·74
Thana	Umbargaon	6·75
Thana	Dahanu	6·70
Surat	Olpad	6·15
Surat	Jalalpor	6·10
Surat	Kander	5·98
Surat	Surat	5·25

No rain had, however, fallen in the northern and western quadrants of the storm.

Meantime, pressure had given way briskly to rapidly in Burma, and a low pressure area now lay over that region. Winds were in consequence abnormally westerly over the north of the Bay, and no rain, beyond a few local showers of little value, had fallen in North-East India.

23rd August.—The storm in North-Western India had advanced at the same rate as on the 22nd and now lay over Sind and the neighbouring districts of the Punjab.

The following data define its position and character at 8 A.M.:—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Kurrachee	29·581	+·037	—·044	SW	11	9	1·32	Drizzling.
Hyderabad	·536	+·008	—·045	N	8	9	3·80	Drizzling.
Bhuj	·567	...	—·085	SW	10	10	0·66	
Deesa	·616	+·086	—·053	S	13	9	0·96	
Jodhpur	·619	+·063	...	S	8	8	...	
Bikaner	·582	+·018	—·001	SSW	12	6	...	Duststorm.
Mooltan	·549	—·047	+·001	SE	3	2	...	
Jacobabad	·524	—·011	—·025	Calm	2	5	0·27	

The observations show that the centre of the storm was 60 miles to the east-south-east of Hyderabad in Lat. 25¼° N. and Long. 69¾° E. The storm area was still oval-shaped, but the longest diameter now ran north-east and south-west, an indication that the storm was changing its line of advance. Moderately heavy rain had fallen in Gujarat, Kathiawar and Lower Sind, and showers in Rajputana and parts of Baluchistan.

Large changes had occurred in Bengal and the north of the Bay, where pressure had decreased briskly to rapidly and winds had shifted to cyclonic directions. Pressure had, on the other hand, increased over the greater part of Burma, and the depression in that area on the previous day had very nearly filled up, its continued existence in the chart being shown by an irregular cyclonic circulation of the winds at Rangoon, Bassein and Diamond Island.

24th August.—The storm in North-West India had recurved during the previous 24 hours and advancing northwards passed into the South-West Punjab. Its position at 8 A.M. is indicated by the following observations:—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
D. I. Khan	29·441	—·117	—·107	SE	2	0	...	
Mooltan	·466	—·083	—·087	SE	3	0	...	
Jacobabad	·469	—·055	—·085	Calm	1	1	0·35	
Montgomery	·479	—·079	—·082	SW	11	0	...	

Winds were very feeble in the depression area and showed no definite centre of convergence. Moderately strong winds obtained along the Sind and Kathiawar coasts but were determined eastwards and only light rain had been received in Gujarat, Sind and Kathiawar. Skies had clouded over and some showers had occurred in the hill and submontane districts of Upper India.

The residual depression filled up and disappeared during the day after giving favourable rain to the Punjab and the neighbouring districts of the United Provinces.

The storm was of feeble intensity throughout its existence but was remarkable for the much-needed burst of rain which it gave to Gujarat and Kathiawar.

The following table gives the position and rate of advance of the centre on each date from the 19th to the 23rd:—

Date.	Position of centre at 8 A.M.		Distance travelled during interval.	Average hourly rate of motion during interval.
	Lat. N.	Long. E.		
	° ′	° ′	Miles.	Miles.
19th August	17 35	86 0	...	...
20th „	21 10	80 45	430	18
21st „	22 30	77 50	220	9
22nd „	23 30	73 45	290	12
23rd „	25 15	69 40	290	12

Cyclonic storm of the 23rd to the 30th August.—As already pointed out, this storm began to form on the 23rd, on which day light northerly winds obtained at the head of the Bay and moderate to strong south-west wind over the centre and south.

The following data extracted from the logs of vessels show the character of the winds and weather over the Bay on this day:—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer (corrected).	WIND.		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Idzumi Maru*.	6 00	89 17	29·814	SW	5 to 6	Cloudy; 4 A.M. showery.
S.S. *Ranee* . .	9 35	86 59	·788	SW	6 to 5	Moderate sea and overcast; 4 A.M. heavy rain squalls.
S.S. *Catherine Apcar*.	10 09	96 29	·822	W	5	Moderate sea and fine; 4 P.M. continual squalls of wind and rain.
S.S. *Booldana* .	12 08	84 15	·711	SW	6	Moderate sea and cloudy; 4 P.M. dull overcast.
S.S. *Itola* . .	12 36	84 25	·700	SW	4	Moderate sea and fine; noon overcast.
S.S. *Pentakota* .	Madras.		·735	...	...	8 P.M. dull.
S.S. *Pindari* .	14 15	85 18	·652	SW	5	Moderate S. W. swell and overcast; midnight heavy squalls with heavy rain.
S.S. *Maharani* .	15 27	95 15	·607	SW	6 to	Rough sea and frequent heavy squalls of rain.
S.S. *Lawada* .	15 29	94 36	·626	SW	5	Slight sea and occasional showers.
S.S. *Maharaja* .	16 59	92 30	·577	SW	4	Moderate sea and dull overcast; noon heavy rain squally.
S.S *Dongola* .	17 03	86 17	...	WSW	4	Moderate sea and cloudy; noon squally.
S.S. *Onipenta* .	17 45	87 16	·572	WSW	4	Moderate sea and cloudy; 4 P.M. drizzling rain.
S.S. *Kapurthala* .	18 26	93 50	·568	W by S	6	Heavy sea and overcast; 4 A.M. heavy squalls of wind and rain.
S.S. *City of Bombay*	18 34	87 08	·570	WSW	4	Moderate sea and overcast, gloomy; 8 P.M. fierce rain, squalls with thunder and lightning.
S.S. *Nerbudda* .	20 08	89 19	·599	Var	2	Overcast.
S.S. *Shahzada*.	Eastern Channel L.V.		·490 ?	...	...	8 P.M heavy rain squalls.

The preceding data show that south-west winds, force 4 to 8, obtained over the whole of the Bay to the south of Latitude 19° N. and that to the north of that parallel winds were unusually light and chiefly from northerly directions, conditions which almost invariably precede the formation of cyclonic storms in the rainy season. The disturbance intensified considerably during the day; as is shown by the following remarks of Captain Beahan of the F. L. V. *Torch*.

"*23rd.*—A long sharp swell from south, an unsettled appearance in weather, sky overcast, wind veering from north-west in the morning to north by afternoon when it became squally with heavy thunder and lightning to north-east. During the night much vivid lightning and thunder between north and east-south-east; a strong north wind increasing in force during the squalls.

24th.—Commenced with moderate northerly gale, passing rain squalls, thunder and vivid lightning to north-east and south-east and heavy confused southerly and easterly sea; also a heavy chopping sea from north.

4 A.M. wind and weather the same. 8 A.M.—A fresh easterly gale passing rain squalls and heavy confused south and south-south-east sea."

24th August.—Pressure had risen rapidly in Lower Burma, and the residual depression in that area on the 23rd had entirely disappeared. Pressure had, on the other hand, decreased over the whole of India, the fall being greatest in the north-west of the Bay and Orissa, where it averaged a sixth of an inch in amount. The depression in the north of the Bay had concentrated considerably during the past day, and was now a storm of moderate intensity with very steep gradients to the south and east. The following observations, furnished by vessels navigating the north of the Bay on this day, show the character of the disturbance:—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer (corrected).	WIND.		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S. S. *Chanda* .	16 33	92 54	29·677	SW	6	S. W. swell and overcast; 8 P.M. occasional heavy squalls of wind and rain
S. S. *Nerbudda*.	17 13	92 04	·612	SW	6	Heavy swell and heavy rain squalls.
S. S. *Lawada* .	17 14	92 25	·617	SW	6	High sea and overcast; 4 A.M. occasional rain squalls.
S. S. *Pindari* .	17 24	86 43	·492	SW	7	High S. W. sea and heavy squalls with heavy rain.
S. S. *Maharani*.	17 25	93 25	·616	SW	6	Squally; 4 P.M. squally with heavy rain.
S. S. *Rajah* .	19 02	85 50*	·515	W by S	7	Heavy rain and rough sea.
S. S. *Dongola* .	19 16	86 45	...	W by S	6	Squally with rough sea; 4 A.M. heavy rain.
S. S. *Onipenta* .	20 18	87 36	·353	SW by S	4	Moderate sea and cloudy; 4 A.M. rainy.
S. S. *Commilla*.	Akyab		·629	...	...	Noon squally with rain.
S. S. *City of Bombay*.	Saugor Island			N	...	4 A.M. heavy rain squalls.
S. S. *Kistna* .	Calcutta		·470	...	...	8 P.M. continuous rain
S. S. *Malda*	Calcutta		·476	...	...	Midnight rain squalls

* Noon position.

A well-marked cyclonic circulation hence obtained over the area of depression, the centre of which was probably in about Lat. 20¾° N. and Long. 87½° E.

The lowest pressure recorded in the central area was 29·35″ (corrected) on board the *Onipenta*, a reading ·26″ below the normal. Lower Bengal, Orissa, Chota Nagpur and the eastern districts of the Central Provinces had received moderate to heavy rain.

The following additional observations, taken on board the F. L. V. *Torch* indicate that the storm began to advance in a north-westerly direction in the evening, and that the centre was nearest to the vessel between 9 P.M. and 9-30 P.M., when "the sky became clear":—

From 8 A.M. to 2 P.M. much less wind, but southerly sea; heavier squalls not so frequent.

4 P.M.—A fresh south-east gale with heavy confused sea and passing rain squalls.

8 P.M.—A very heavy, confused southerly and south-south-west sea, and passing rain squalls; wind south, blowing a fresh gale.

Between 9 and 9-30 P.M. the sky became clear, clouds all round and down to the horizon; much vivid lightning commenced at this time to south-west and west, and the sea became heavier.

Midnight.—A fresh south gale, passing heavy rain squalls, and very high, confused sea.

The centre crossed the Orissa Coast probably between 10 P.M. and 11 P.M. and advancing rapidly along a north-westerly path lay over Chota Nagpur and the eastern districts of the Central Provinces at 8 A.M. of the 25th.

The following observations indicate its character and position at that time:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	″	″	″				Inches	
Chaibassa	29·383	—·096	—·222	SE	6	9	1·35	Showery.
Ranchi	·393	—·113	—·225	Var.	17	10	1·67	Showery.
Sambalpur	·393	—·151	—·242	WSW	8	10	3·67	Continuous rain.
Hazaribagh.	·417	—·098	—·209	ESE	16	10	0·57	Showery.
Gaya	·432	—·090	—·187	NE	8	8	0·14	Showery.
Cuttack	·454	—·004	—·168	SSW	7	10	4·81	Continuous rain.
False Point.	·495	+·109	—·138	SW	22	9	3·25	Continuous rain.
Balasore	·466	+·040	—·152	SW	12	8	0·54	
Burdwan	·497	—·012	—·137	SE	10	9	0·01	Showery.
Patna	·498	—·041	—·130	ENE	9	10	0·62	Showery.
Benares	·482	—·068	—·122	NE	2	9	0·74	
Sutna	·526	—·048	—·091	WSW	8	10	1·36	Continuous rain.
Raipur	·487	—·083	—·153	SW	12	8	2·37	Drizzling.

The storm at 8 A.M. was central nearly midway between Sambalpur and Ranchi in about Lat. 22¼° N. and Long. 84¾° E., or about 225 miles to the north-west of its position at the same hour of the previous day. Pressure was about a quarter of an inch below the normal in the central area and the disturbance was hence of moderate intensity.

Very strong winds, force 8 to 9, prevailed along the Orissa and Bengal Coasts and were strengthening on the Konkan Coast. Rain had been received over the whole of Bengal, the United Provinces, Orissa, Chota Nagpur, the Central Provinces and the eastern states of Central India, the largest amounts having fallen in front of the storm.

The following gives the most noteworthy falls:—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 25th.
		Inches.
REWAH	Sohagpur	7·37
HOSHANGABAD	Pachmarhi	7·02
	Sohagpur	6·35

26th August.—Pressure had increased briskly to rapidly in the region occupied by the storm on the 25th, and had fallen to a moderate extent in Bundelkhand, Baghelkhand and the neighbouring districts, to which area the storm had now advanced.

The following gives 8 A.M. observations recorded in the storm area:—

STATION.	PRESSURE. 8 A.M. reduced to sea level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	″	″	″				Inches	
Gaya	29·515	+·083	—·106	SE	12	6	0·12	Showery.
Benares	·470	—·012	—·138	E	6	10	0·25	
Sutna	·443	—·083	—·173	NNE	7	10	1·60	Continuous rain.
Allahabad	·482	—·030	—·127	ENE	15	10	0·20	Gale
Nowgong	·495	—·056	—·126	NNE	2	10	1·36	Continuous rain.
Saugor	·526	—·047	—·121	N	6	9	2·65	Drizzling.
Jubbulpore	·441	—·090	—·200	WSW	4	10	3·72	Raining.
Seoni	·500	—·032	—·157	WSW	8	10	0·75	
Raipur	·518	+·031	—·124	SW	16	6	0·21	Drizzling.
Sambalpur	·550	+·157	—·091	SW	10	10	2·02	Showery.
Ranchi	·536	+·143	—·093	SE	10	9	0·64	Showery.
Hazaribagh	·528	+·111	—·104	SSE	12	10	0·32	Showery.

As on the previous two days, the storm exhibited a well-defined cyclonic circulation, at the centre of which pressure was over a fifth of an inch below the normal. The centre lay in about Lat. 23¾° N and Long. 81½° E, and had hence travelled at an average rate of about 10 miles an hour during the previous 24 hours. Winds had fallen off considerably in the north of the Bay and the rainfall of the previous 24 hours was light in Bengal and the Gangetic Plain. Winds had increased still further on the Bombay Coast, and moderately heavy rain had again been received in the Central Provinces, East Rajputana, Bundelkhand and Baghelkhand.

27th August:—A brisk to rapid rise of pressure had occurred in North-Eastern India and pressure was now in slight to moderate excess in Bengal and Assam. Pressure had, on the other hand, decreased slightly to briskly in the west of Central India and the neighbouring districts of Gujarat and Rajputana. These changes were due to the advance of the storm which at 8 A.M. of this day was central to the south-west of Nowgong in about Lat. 24¾° N and Long. 78¾° E.

The following observations define its position at that hour:—

Station.	Pressure. 8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	"	"	"				Inches	
Jhansi	29·487	—·048	—·140	NNE	9	4	0·93	Showery.
Nowgong	·502	+·007	—·122	E	4	10	0·82	
Cawnpore	·545	+·020	—·062	ESE	10	10	...	
Agra	·544	—·020	—·075	NE	6	10	...	
Kotah	·523	—·063	...	NNW	7	10	1·63	Raining.
Neemuch	·544	—·078	—·130	NNE	9	10	0·68	Showery.
Saugor	·503	—·023	—·143	SSW	5	10	1·54	Continuous rain.
Hoshangabad	·531	—·026	—·154	SW	7	10	2·68	Raining.
Jubbulpore	·543	+·102	—·101	SSW	8	9	0·31	Drizzling.

The depression at the centre was less than a sixth of an inch and the storm was hence filling up. The Bay current was now very feeble, and only light showers had fallen in North-Eastern India. Moderately strong winds were blowing across the Kathiawar and Konkan Coasts and giving moderate to heavy rain in the southern and western quadrants of the storm.

The following gives the more noteworthy falls reported in the storm area on this day;—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 27th.
		Inches.
Kaira	Kopadvanj	10·14
Surat	Chikhli	5·95
Mahikantha	Mohanpur	5·89

The distribution of rainfall is interesting, and indicates that the storm was now being maintained almost solely by the Bombay current.

28th August.—Pressure had increased over the greater part of India, but had fallen slightly in Central and West Rajputana. The storm had advanced more rapidly than hitherto, and had now coalesced with the Upper India low pressure area of the rains. It hence covered a much larger area than on the previous day.

The following gives data for the combined low pressure area:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	"	"	"				Inches	
Ajmer	29·560	—·023	—·103	E	6	10	0·37	Thunder.
Jaipur	·599	+·021	—·054	ENE	6	10	0·34	Showery.
Sambhar	·571	—·002	—·061	E	10	9	0·08	Showery.
Udaipur	·553	—·025	...	WNW	2	10	1·02	Thunderstorm.
Jodhpur	·573	—·026	...	NNE	4	10	...	Nor'wester.
Bikaner	·571	+·002	—·042	ENE	12	6	...	
Kotah	·565	+·042	...	SW	7	9	0·90	
Neemuch	·584	+·040	—·100	SSW	9	10	1·96	Showery.
Indore	·643	+·077	—·045	S	9	8	0·88	
Deesa	·586	+·002	—·101	WNW	8	10	1·55	Thunderstorm.
Jacobabad	·566	+·025	—·003	NE	0	8	...	
Hyderabad	·564	+·005	—·037	WSW	9	2	...	

The air movement was somewhat irregular in this area but indicated convergence to a centre nearly midway between Ajmer and Udaipur. North-east winds obtained at Mount Abu, showing that the influence of the storm was almost evanescent at that elevation. Pressure was only a tenth of an inch in defect in Rajputana, and the storm was hence a very shallow, diffused disturbance at this stage. Excessive rain had fallen in Gujarat and Kathiawar in the southern quadrant of the storm, moderately heavy rain in the western districts of the United Provinces, and light to moderate rain in Rajputana and Central India.

The following gives the more remarkable falls recorded at 8 A.M. in these areas :—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 29th.
		Inches.
Kaira	Anand	8·34
	Dakor	7·39
	Thasra	7·10
Ahmedabad	Modasa	7·02
Mahi Kantha	Bayad	7·00
Surat	Pardi	7·00
Kaira	Mahudha	6·91
Bulandshahr	Khurja	6·83
Panch Mahals	Halol	6·66
	Kalol	6·51
Bijnor	Dhampur	6·40
Surat Agency	Dharmpur	6·10

Winds were exceedingly light and unsteady at the head of the Bay and weather was fine in Bengal with a few local showers—conditions favourable to the formation of a storm of the rains in the north of the Bay.

29th August.—Pressure had given way over the whole of the Indian region, except in East and Central Rajputana, where it had increased slightly. The fall was brisk over the greater part of the country, an indication that the downward movement was independent of the storm. A large, shallow low pressure area covered Sind and the west of Rajputana on this day, the centre of which was probably about 80 miles to the north-west of Pachpadra.

The following gives data for this region :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Mooltan	29·556	—·081	—·019	NE	3	0	...	Duststorm.
Sirsa	·553	—·059	—·054	ENE	12	4	1·17	Showery.
Bikaner	·532	—·039	—·093	ESE	11	9	0·40	
Jodhpur	·545	—·028	...	SSE	5	10	0·60	Showery.
Pachpadra	·507	—·016	—·147	SSW	5	10	2·42	
Kurrachee	·571	—·072	—·079	WSW	14	5	...	
Hyderabad	·515	—·049	—·089	Calm	7	5	...	
Jacobabad	·501	—·065	—·073	Calm	2	0	...	Duststorm.

A fairly well-marked cyclonic circulation of the winds obtained over this area. On the Kathiawar Coast winds were much more westerly and feebler than on the previous day, thus showing that the indraught to the storm from the north-east of the Arabian sea was taking off in volume and intensity. General rain had fallen in the southern and eastern quadrants of the storm, but the amounts were nowhere heavy. Winds had increased in strength over the centre and south of the Bay, but continued unusually light in the north of the Bay.

30th August.—Pressure had changed irregularly, but generally by small amounts, and was more or less in defect over by far the greater part of the country.

The residual depression in North-West India had shifted slightly northwards, but was unchanged in character.

The following data indicate its position on this day :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
Dera Ismail Khan.	29·547	—·037	—·033	Calm	2	0		Dust-haze.
Mooltan	·538	—·018	—·040	NE	2	0		Duststorm.
Montgomery	·552	—·005	—·039	NE	9	6	0·40	Showery.
Delhi	·550	—·009	—·064	Calm	4	0		
Ajmer	·582	—·006	—·093	SE	5	10	0·28	Thunder.
Jodhpur	·567	+·022	...	ESE	3	7	0·08	Showery.
Bikaner	·525	—·007	—·097	ESE	4	5	0·02	
Sirsa	·546	—·007	—·061	ENE	6	0	0·21	Showery.
Hyderabad	·520	+·005	—·087	WSW	7	2		
Jacobabad	·510	+·009	—·069	Calm	1	8		Dust-haze.
Kurrachee	·594	+·023	—·060	W	12	4		
Pachpadra	·524	+·017	—·130	SSW	2	10	0·21	

Moderate rain had fallen in the submontane and hill districts of the Punjab and in Gujarat. Northerly winds had set in over the head of the Bay, where a storm was in process of formation.

31st August. A rapid rise of the barometer had occurred over North-Western India and pressure was now in moderate to considerable excess in the Punjab. A large depression still showed over Sind and West Rajputana, but pressure was normal in that region and the disturbance was hence of little consequence. Pressure had decreased locally in Bengal and the north of the Bay and a well-defined depression, in which the barometer read a tenth of an inch below the normal, lay over the

north-west of the Bay. Winds were above their normal strength in both the Bay of Bengal and the Arabian Sea and moderate rain was falling over the greater part of the country.

The storm under discussion formed at the head of the Bay on the 23rd and 24th under the usual conditions of storm generation in the rains, and advancing in a north-westerly direction during the next four days, was merged in the quasi-permanent area of low pressure in Sind and Rajputana on the 28th, when it ceased to exist as an independent system. After this date the only evidence of its continued existence was afforded by a feeble cyclonic circulation of winds in Sind and Rajputana. The centre of this circulation lay about 80 miles to the north-west of Pachpadra on the 29th and about 100 miles to the west-south-west of Bikanir on the 30th and had therefore recurved to north. It filled up on the 31st, for there was no trace of its existence in the chart of the 1st September. The storm, although of only moderate intensity, determined a moderately heavy burst of rain to Northern and Central India and excessive rain to Gujarat and Kathiawar on the 27th and 28th, several stations obtaining in these two days total amounts considerably in excess of their total normal fall in August.

The following data for selected stations illustrate this feature :—

Division.	Station.	Actual rainfall of 27th and 28th August.	Normal rainfall, for August.
		Inches.	Inches.
Gujarat, Kathiawar and Cutch	Kapadvanj	10·36	8·30
	Anand	12·92	9·08
	Nayad	11·98	8·11
	Bajana	5·22	3·85
	Rahpur	6·03	3·78

The following statement gives the position of the storm centre and its daily rate of motion from the 24th to the 30th :—

Date.	Position of centre at 8 A.M.		Distance travelled during interval.	Average hourly rate of motion during interval.
	Lat. N.	Long. E.		
	° ′	° ′	Miles.	Miles.
24th August	20 40	87 30	...	...
25th „	22 20	84 40	225	9
26th „	23 40	81 25	240	10
27th „	24 45	78 45	190	8
28th „	25 30	74 15	300	13
29th „	26 45	71 10	200	8
30th „	27 35	71 30	60	3

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

Kashmir and Punjab Himalayas.

(1) *Killa Drosh.*—Light snow is reported to have fallen on the hills to the north-east of Killa Drosh (down to about 15,000 feet) on the 15th and 17th.

(2) *Kashmir.*—Light to moderate falls of snow occurred on the Afferwata Mountain (near Gulmarg) on the 3rd, 11th, 12th and 30th.

(3) *Simla.*—There were slight snowstorms on the higher hills near Kilba on the 2nd, 4th, 30th and 31st. The snowline descended to 11,000 feet during the last storm. The depth of snow at the end of the month on the Rupin, Shatul, Bruan and Bulder passes was between four and five feet. The weather is said to have been more rainy than usual.

United Provinces Himalayas.

Kumaon.—The following report regarding the snowfall in this district has been received from the Deputy Commissioner of Almora:—

Malla Johar.—Moderate snow fell on the 1st, and 7th, 8th, 26th and 27th on the Utadhura pass. The total fall is reported to have amounted to seven feet.

Malla Danpur.—No snow fell in this parganna.

Byans, Chandas and Durma.—Snowstorms occurred on three occasions *viz.*, the 3rd, 11th and 13th. The total fall measured four feet in depth.

The snowfall of the month was greater than in the corresponding period of previous years.

Summary.—The preceding information while indicating the absence of general snowfall on the higher elevations of the Western Himalayas shows that there were some local falls in the Kumaon, Simla and Kashmir hill districts. The total fall during the month measured from four to seven feet in depth in parts of the Kumaon Himalayas and was hence unusually heavy for the period of year. The snow accumulation on the Rupin, Bulder and Shatul passes was also probably greater than usual. The snowline on the hills near Kilba at the end of the month was almost certainly 1,000 to 2,000 feet lower than is ordinarily the case in August.

Summary of Special Storm Reports.

Local storms were much more frequent than usual in consequence of the unsteadiness and feebleness of the monsoon currents during the greater part of the month. The following is a brief statement of the more important of these disturbances :—

August, 2nd.—Thunderstorm at Srinagar between 6 and 8 P.M. It came from the north-east.

" " Thunderstorm at Gulmarg from 3 to 6 P.M. Hail fell between 5 and 5-10 P.M. and injured the maize crop. The largest stones were 24 grains in weight.

" " Severe thunderstorm at Calcutta. "Shortly after midday peals of thunder and flashes of lightning were continuous for the space of nearly an hour. Several places were struck by lightning including the Park Street Police Thana and St. Joseph's High School."—(*Englishman.*)

" *10th.*—Thunderstorm at Srinagar at 2 P.M.

" *11th.*—Thunderstorm at Gulmarg at 6 P.M.

" " Thunderstorm at Srinagar from 11 A.M. to noon and again from 5 P.M. to 9 P.M.

" *12th.*—Thunderstorm at Simla from the south-west between 5-35 P.M. and 7-20 P.M.

" " Duststorm at Lahore at 6-35 P.M.

" *18th*—Severe nor'wester at Gulmarg between 3-30 and 5-30 P.M. The wind blew at the rate of 53 miles an hour between 3-30 and 4 P.M.

" " Duststorm at Srinagar from 3 to 5 P.M. Thirty-five miles of wind were recorded during the interval from 3 to 4 P.M.

" *19th.*—Thunderstorm at Simla at 2-25 P.M. It came from the west and lasted for about an hour.

" *21st.*—Thunderstorm at Jodhpur from 11-49 A.M. to 0-4 P.M. It came from the south-east and was followed by very heavy rain. A total of 1·76 inches fell in an hour of which 1·55 inches occurred between 0-22 P.M. and 1-2 P.M. Pressure increased from 28·980″ at 11-54 A.M. to 29·020″ at 0-22 P.M. and fell ·048″ in the succeeding 40 minutes.

" *23rd.*—Violent duststorm at Jacobabad from the north-north-east. It lasted from 1-5 P.M. to 1-15 P.M. and uprooted several trees.

" *24th.*—Thunderstorm at Simla from the south-west between 11-25 A.M. and 3 P.M.

" *25th.*—Thunderstorm at Simla from 2-46 P.M. to 3-30 P.M. Only 3 miles of wind were registered by the anemograph during the storm.

" *26th.*—Thunderstorm at Srinagar from 8 P.M. to 11 P.M. It came from the south-south-east.

August, 27th.—Duststorm at Jodhpur from 2·57 P.M. to 3-12 P.M.

" *28th.*—Severe duststorm at Jacobabad at 3-40 P.M. The storm came from the north-north-east and lasted for about 30 minutes. Many trees were blown down during the storm.

" *30th.*—Thunderstorm at Simla from noon to 3 P.M. It came from the west-south-west.

" " Thunderstorm at Nagpur between 2-35 P.M. and 4 P.M. The total amount of wind recorded during the storm was only 3 miles.

The following reports of earthquakes during the month have been received:—

August, 3rd.—Earthquake at Teheran at 6-11 A.M. (Greenwich time). The wave came from the north-east and lasted about 4 seconds.

" *12th.*—Earthquake at Kabul between 8 P.M. and 9 P.M., at Killa Drosh at 10 P.M., at Gulmarg at 10-35 P.M., at Skardu at 10 30 P.M. and at Srinagar at 10-43 P.M. The duration of the tremour varied from 3 seconds at Skardu to 2 minutes and 43 seconds at Srinagar.

" *22nd.*—Earthquake at Kashgar at about 8 A.M. The shock was of great severity and lasted about a minute-and-a-half. "The town suffered much from the shock; many walls and buildings have been seriously damaged. The large village of Artush near Kashgar has been left in ruins. Most of the houses in the Artush district collapsed; 667 deaths are known to have occurred in the district, while more than 1,000 persons have been severely injured. Fissures have been observed in the ground, but the most extraordinary phenomenon in connection with the earthquake was the extreme heat which followed it."—(*Pioneer*, dated 28th September 1902.) The wave passed from north to south and affected Srinagar at 8-20 A.M. and Gulmarg at 8-30 A.M. Shocks were felt at Kashgar also between 8-35 A.M. and 9-15 A.M., at 10 A.M., noon, 1 P.M., 2-30 P.M., 3 P.M., 7-30 P.M. and during night.

" *23rd.*—Earthquake at Kashgar during the morning.

" *24th*— Ditto at 2 and 5 P.M.

" *25th*— Ditto at 10-30 A.M.

" *26th*— Ditto at 5 P.M.

" *27th*— Ditto at 10 A.M.

" *28th*— Ditto at 4 P.M.

" *29th*— Ditto at 8-30 P.M.

" *31st*— Ditto at 4 A.M.

Brief Summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—A moderately strong monsoon prevailed over this area during the first two days of the month. The current fell off rapidly in strength on the 3rd and was considerably weaker than usual during the next four days.

A large increase in the strength of the winds occurred in the west of the Sea during the next three days, but it was only a temporary change, as winds fell off again in that area on the 11th and on the morning of the 12th averaged only 3·4 in force, or 0·9 below their normal August intensity. The air movement was unusually feeble during the next seven days, more especially in the eastern half of the sea, where light unsteady airs and calms obtained.

A large change occurred on the 19th; the winds increased rapidly in strength and were of normal intensity on the morning of the 20th. Conditions were practically unchanged during the next four days, a fresh monsoon obtaining generally. The monsoon current took off again on the 25th and was very weak until the 30th, its average strength during the period varying between 3·1 and 3·8. It increased quickly again during the 30th, and at 8 A. M. of the 31st was 0·2 stronger than usual.

It will thus be seen that the current in the Arabian Sea was not only exceedingly unsteady but was also below the normal strength on most days of the month, more especially in the east of the Sea. The winds contained a strong southerly element in the west, and a westerly element in the east of the Sea, more especially during the periods of weakness of the current. On the mean of the whole month the air movement in the Arabian Sea was at least 14 per cent. weaker than usual.

Bay of Bengal.—Over this area, as in the Arabian Sea, the monsoon current was considerably weaker than usual during the first eighteen days of the month. The feebleness was on the whole most marked from the 12th to the 15th, when the mean strength of the current was only 2·8, or 1·2 below the normal. The current increased rapidly in strength during the 18th and was stronger than usual during the greater part of the remainder of the month. Notwithstanding its weakness during the first eighteen days the current in the Bay was on the mean of the month only 0·3 below the normal. There were no large or persistent variations in the direction of the air movement over this area, except in the centre and north. The current blew somewhat more directly from the west than usual on most days of the month in the former, and from the south in the latter area.

Equtorial Belt.—There is no information available for the eastern half of this region. In the western half, so far as can be judged from the data of a few vessels, conditions were very abnormal during the greater part of the month. The south-east trades were moderately strong during the first seven days, but were determined more largely than usual to East Africa. They diminished considerably in strength on the 8th and were more or less below their normal intensity during the next seven days. During this period abnormal northerly winds prevailed over the region lying between the meridians of 56° and 80° E. An important change occurred on the 16th, when the winds reverted to their normal August directions and began to intensify. The trades current was very vigorous from the 17th to the 26th of the month after which unfavourable conditions re-appeared. Light airs and calms obtained to the east of Long. 56° E. and moderate south-east winds between that meridian and East Africa.

The returns for Zanzibar and the Seychelles show that winds were on the mean of the month weaker than usual at both these stations. The total precipitation of the month was only one-third of the normal at Zanzibar. The Seychelles, on the other hand, received nearly 30 per cent. more than the normal fall.

The meteorological conditions over the Indian Seas were hence characterized by several abnormal features, of which the following were the most noteworthy:—

(1) The air movement was more or less below its normal strength over the whole sea area during the greater part of the month. This feature was most marked during the first week in the south of the Indian Ocean as represented by Mauritius and between the 11th and 16th or 17th in the equatorial region, the Arabian Sea and Bay of Bengal, thus indicating that the actions giving rise to it originated in the extreme south and thence progressed northwards.

(2) Abnormal northerly winds prevailed in the equatorial region between the meridians of 56° and 80° E. during the second week.

(3) The contrast between the conditions in the east and in the west of the Arabian Sea during the periods of weakness of the current as shown by the prevalence of light unsteady northerly airs in the former and of moderately strong monsoon winds (with more southing than usual) in the latter region.

(4) Winds were more westerly than usual over the centre and south-east of the Bay, thus indicating a stronger set than usual of the current to Lower Burma. Winds, on the other hand, contained a strong southerly element in the north of the Bay and were hence directed more largely than usual to North Bengal and Sikkim.

The following table shows the abnormal character of the air movement in the western half of the Equatorial Belt and the west of the Arabian Sea in the first sixteen days of the month, during which period the monsoon currents were much below their normal intensity:—

Area.	Region comprised between		Actual mean wind direction during first sixteen days of August, 1902.	Normal mean wind direction, August.
	Latitude.	Longitude.		
			°	°
South-West and west of the Arabian Sea.	4 N to 20 N	48 E to 52 E	S 16 W	S 25 W
	4 N to 20 N	52 E to 56 E	S 26 W	S 39 W
	4 N to 20 N	56 E to 60 E	S 36 W	S 47 W
West Equatorial Belt.	12 S to 4 N	4 E to 48 E	S 39 E	S 19 E
	12 S to 4 N	48 E to 52 E	S 2 W	S 11 E
	12 S to 4 N	52 E to 56 E	S 29 E	S 22 E
	12 S to 4 N	56 E to 60 E	S 37 E	S 27 E

Area.		Region comprised between: Latitude.	Longitude.	Actual mean wind direction during first sixteen days of August, 1902.	Normal mean wind direction, August.
				°	°
Central Equatorial	Northern Section	4 S to 4 N	60 E to 64 E	N 68 E	S 19 E
		4 S to 4 N	64 E to 68 E	N 45 E	S 2 E
		4 S to 4 N	68 E to 72 E	N 56 E	S 49 E
		4 S to 4 N	72 E to 76 E	N 19 E	S 46 E
		4 S to 4 N	76 E to 80 E	W	S 32 W
	Southern Section	12 S to 4 S	60 E to 64 E	S 45 E	S 51 E
		12 S to 4 S	64 E to 68 E	No data	S 48 E
		12 S to 4 S	68 E to 72 E	S 45 E	S 47 E
		12 S to 4 S	72 E to 76 E	No data	S 42 E
		12 S to 4 S	76 E to 80 E	„ „	S 67 E

These data are very interesting as showing that the winds were more easterly than usual in the west of the Equatorial Belt and more southerly in the south-west and west of the Arabian Sea. The air movement was even more abnormal in the northern section of the central Equatorial Belt, where north-east, instead of the usual southerly to south-easterly, winds prevailed. On the other hand, in the southern section the air movement was, so far as can be ascertained, practically normal in direction.

In this connection it may be noted that during this period pressure was persistently in defect in South Arabia, while it was in steady excess in Western India and the neighbouring sea area.

Temperature of the Air.

The temperature conditions of the month were determined almost solely by the distribution of rainfall, temperature being above, and the rainfall below, the normal over by far the greater part of the country.

The mean maximum or day temperature was above the normal at all stations, with the exception of Sibsagar (—1°·9), Cuddalore (—0°·8) and Salem and Trincomalee (each—0°·1). The excess was more than 2° over practically the whole of the interior of India, and was more than 4° in three areas, for which data are given below :—

Area.	Station.	Mean maximum temperature. Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.
		°	°	°
First Area	Rawalpindi	98·9	93·9	+5·0
	Sialkot	99·5	94·7	+4·8
	Peshawar	103·5	99·2	+4·3
Second Area	Deesa	95·6	88·9	+6·7
	Ajmer	92·5	88·2	+4·3
	Ahmedabad	94·4	90·1	+4·3
	Sambhar	95·4	91·3	+4·1
Third Area	Secunderabad	91·8	86·1	+5·7
	Sholapur	93·9	88·8	+5·1
	Chanda	92·5	87·6	+4·9
	Bijapur	90·3	86·1	+4·2
	Chitaldroog	86·3	82·1	+4·2
	Raichur	92·6	88·5	+4·1
	Malegaon	90·7	85·6	+4·1
	Nagpur	91·1	87·0	+4·1

The day temperature was hence in largest excess in the Submontane Punjab from Peshawar to Sialkot, the central and south-western districts of Rajputana, and the greater part of the Deccan.

The highest day temperatures of the month were registered generally in North-West and Central India and the Peninsula between the 13th and 22nd and were in some cases higher than any previously on record in the month of August.

The following gives data in illustration of this feature :—

Station.	Highest maximum temperature recorded in August 1902.	Date on which recorded.	Highest maximum temperature recorded in August previous to 1902.	Year in which recorded.
	°		°	
Jacobabad	116·6	1st	116·1	1900
Mooltan	112·4	22nd	111·4	1899 & 1901
Kotah	111·5	19th	103·2	1899
Hyderabad (Sind)	108·7	22nd	110·2	1900
Sirsa	108·3	18th	110·9	1877
Jodhpur	107·2	21st	104·2	1899 & 1900
Jaipur	106·2	20th	106·2	1899
Deesa	105·1	21st	103·0	1877
Patiala	105·0	19th	104·0	1899
Tinnevelly	103·4	13th	102·4	1895, 1898 & 1900.
Nellore	103·3	14th & 15th	105·4	1899
Umballa	101·5	18th	101·5	189 & 1899
Ahmedabad	101·3	19th	100·3	1899
Poona	91·0	18th	90·5	1899

The mean minimum or night temperature was, with a few unimportant local exceptions, everywhere in excess of the normal. The variations were, as is usually the case in the rainy season, much smaller than those of the day temperature, but exceeded 2° at the following stations :—

Station.	Mean minimum temperature. Actual, August, 1902.	Normal, August.	Variation of actual from normal, August, 1902.
	°	°	°
Ajmer	79·5	75·3	+4·2
Sialkot	81·0	77·7	+3·3
Lahore	80·9	77·8	+3·1
Bikaner	83·7	80·6	+3·1
Sirsa	83·1	80·2	+2·9
Deesa	78·5	75·6	+2·9
Jhansi	79·8	77·1	+2·7
Ludhiana	81·4	79·0	+2·4
Agra	81·0	78·8	+2·2
Sambhar	79·3	77·2	+2·1
Hyderabad (Deccan)	74·1	71·1	+3·0
Sholapur	72·8	70·6	+2·2
Goa	77·9	75·8	+2·1

Except locally at Sibsagar, Dehra Dun and Roorkee, where it was in very slight defect, the mean temperature of the month was higher than usual at all the plains stations. The excess was moderate to considerable in amount (varying between 2° and 5°) over the greater part of the Punjab, Upper Sind, Rajputana, Central India, Gujarat, Khandesh, nearly the whole of the Central Provinces, Berar and the Deccan. It was more than 4° in the areas represented by the stations for which data are given below :—

Station.	Mean daily temperature. Actual, August, 1902.	Normal, August.	Variation of actual from normal, August, 1902.
	°	°	°
Deesa	87·1	82·3	+4·8
Ajmer	86·0	81·7	+4·3
Sialkot	90·3	86·2	+4·1

The mean day and night temperatures varied in opposite directions from the normal at the great majority of the hill stations in Upper India. As the night temperature was more largely in defect than the day temperature was in excess, the mean temperature of the month was in defect to a slight extent. At the hill stations in Central India, on the other hand, both day and night temperatures were in excess, the former, however, to a greater extent than the latter. A noteworthy feature of the temperature conditions was the considerable deficiency at Leh where winds were unusually southerly.

The following gives variation data for eight representative stations :—

Station.	Variation from normal of: Mean maximum temperature, August, 1902.	Mean minimum temperature, August, 1902.	Mean daily temperature, August, 1902.
	°	°	°
Leh	−4·4	−3·1	−3·8
Srinagar	+0·3	−2·7	−1·2
Murree	+1·0	−2·9	−1·0
Gilgit	+0·3	−1·7	−0·7
Chakrata	−0·7	−0·5	−0·6
Simla	+0·2	−0·5	−0·2
Mount Abu	+4·9	+1·0	+3·0
Pachmarhi	+4·5	+1·5	+3·0

Temperature was approximately normal in Persia and Baluchistan, and in considerable to large excess in Arabia and Asiatic Turkey.

The following gives data for nine representative stations in those areas :—

Station.	Variation from normal of: Mean maximum temperature, August, 1902.	Mean minimum temperature, August, 1902.	Mean daily temperature August, 1902.
	°	°	°
Bushire	+0·2	−0·8	−0·3
Jask	+0·4	+0·2	+0·3
Quetta	+2·5	+0·3	+1·4
Kalat	+2·1	−4·9?	−1·4?
Chaman	+0·8	+1·3	+1·1
Muscat	+0·7	+0·9	+0·8
Baghdad	+8·0	+5·8	+6·9
Aden	+3·3	+4·3	+3·8
Perim	+2·1	+2·8	+2·5

The temperature conditions of the month hence differed to a greater extent from the normal than is ordinarily the case in August.

The following summarizes the chief features :—

(1) Temperature was in moderate to considerable excess in the Deccan, Berar, the Central Provinces (excepting the eastern districts), Central India, Gujarat, Khandesh, Rajputana, Upper Sind and the North and South Punjab. The excess was much greater in the day than in the night temperature and hence the mean

diurnal range of temperature was somewhat greater than usual.

(2) Temperature was practically normal in Assam, in slight excess in Burma, Bengal, the United Provinces, the east of the Central Provinces, Lower Sind and the coast districts of the Peninsula, the excess being on the whole slightly more marked in the day than in the night temperature.

(3) Temperature was more or less in defect at most of the hill stations in Upper India, due mainly to diminished night temperature. It was, on the other hand, in considerable excess at Mount Abu and Pachmarhi.

(4) Temperature conditions did not differ to any important extent from the normal in Persia and Baluchistan, temperature being either normal or in slight excess in these areas. Temperature was, on the other hand, considerably higher than usual in Asiatic Turkey and Arabia.

The following table gives mean temperature data of the month for the 56 meteorological divisions of the Empire :—

Province.	Division.	Actual temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	84·8	75·4	80·1	9·4	16·7	+0·9	+1·0	−0·1
	Lower Burma (Deltaic)	85·5	76·8	81·1	8·7	15·5	+0·8	+1·1	−0·3
	Central do.	88·5	75·7	82·1	12·9	19·4	+0·9	+1·0	−0·1
	Upper do.	90·7	76·3	83·5	14·4	22·7	+0·8	+0·2	+0·6
	Arakan	86·9	78·0	82·5	8·9	16·7	+2·5	+0·7	+1·8
Bengal and Assam	Eastern Bengal	87·9	78·3	83·1	9·6	18·1	+1·2	+0·6	+0·6
	Assam (Surma)	89·7	77·3	83·5	12·4	25·3	+0·2	+0·5	−0·3
	Do. (Brahmaputra)	87·6	77·7	82·6	9·9	20·8	−0·9	+0·4	−1·3
	Deltaic Bengal	89·9	79·3	84·7	10·6	18·1	+2·2	+0·8	+1·4
	Central do.	90·4	79·1	84·8	11·3	19·8	+1·6	+0·3	+1·3
	North do.	88·6	78·3	83·5	10·3	19·3	+0·3	+0·6	−0·3
	Bengal Hills	66·6	57·6	62·1	9·0	14·1	+1·1	+0·4	+0·7
	Orissa	89·7	78·6	84·1	11·1	19·1	+2·0	+0·5	+1·5
	Chota Nagpur	88·8	76·2	82·5	12·6	20·4	+2·0	+1·3	+0·7
	South Bihar	91·3	79·8	85·6	11·5	21·3	+2·5	+1·0	+1·5
	North do.	90·3	79·3	84·8	11·0	20·0	+0·9	+1·1	−0·2
United Provinces of Agra and Oudh.	United Provinces (East)	91·8	78·3	85·1	13·6	23·3	+2·0	+0·2	+1·8
	Oudh (South)	92·3	78·8	85·6	13·5	25·0	+2·0	+0·2	+1·8
	Do. (North)	90·7	78·8	84·8	11·9	21·1	+0·8	+0·8	0
	United Provinces (Central)	93·1	79·4	86·3	13·7	25·1	+3·2	+1·4	+1·8
	Do. do. (West)	93·3	79·9	86·6	13·4	25·7	+2·3	+1·3	+1·0
	Do. do. (Submontane, East).	90·9	79·3	85·1	11·6	22·1	+1·1	+0·5	+0·6
	Do. do. (Submontane, West).	88·5	75·9	82·2	12·7	23·0	+0·8	−0·1	+0·9
	Do. do. (Hills)	69·9	59·8	64·9	10·1	20·8	+0·1	−0·1	+0·2
Punjab and N.-W. F. Province.	Punjab (South-East)	93·3	81·2	87·3	12·1	28·6	+1·5	+1·9	−0·4
	Do. (South)	98·5	81·2	89·9	17·3	32·6	+2·4	+2·9	−0·5
	Do. (Central)	99·8	80·9	90·4	18·9	38·5	+1·6	+3·1	−1·5
	Do. (Submontane)	96·8	79·8	88·4	17·0	31·3	+2·7	+1·5	+1·2
	Do. (Hills)	81·4	58·7	70·0	22·7	38·9	+0·3	−1·7	+2·0
	Do. (North)	101·2	77·2	89·4	24·0	39·8	+4·7	+0·7	+4·0
	Do. (West)	102·6	81·8	92·2	20·8	39·1	+1·6	+0·4	+1·2
Bombay and Malabar Coast Districts (Madras).	Malabar	84·4	75·4	79·9	9·1	13·7	+1·5	+1·5	0
	Madras (South Central)	90·5	72·8	81·6	17·7	25·4	0	+1·2	−1·2
	Coorg	72·0	62·5	67·3	9·5	14·9	+2·3	+0·5	+1·8
	Mysore	84·6	67·0	75·8	17·6	25·2	+3·1	+0·9	+2·2
	Konkan	84·8	77·2	81·0	7·5	13·1	+1·7	+1·5	+0·2
	Bombay Deccan	87·2	69·8	78·5	17·3	25·6	+3·9	+0·8	+3·1
	Hyderabad (North)	89·0	71·6	80·3	17·4	28·2	...	...	...
	Khandesh	89·6	70·9	80·2	18·7	28·2	+3·9	+0·6	+3·3
Central Provinces and Berar.	Berar	90·3	74·6	82·5	15·7	28·4	+3·7	+1·7	+2·0
	Central Provinces (West)	90·2	75·6	82·9	14·6	25·2	+4·0	+1·2	+2·8
	Do. (Central)	88·4	74·2	81·3	14·2	25·2	+3·7	+0·9	+2·8
	Do. (East)	88·8	75·6	82·4	13·2	21·5	+2·2	−0·5	+2·7
Bombay (North)	Gujarat	92·1	78·4	85·3	13·7	24·5	+3·5	+1·6	+1·9
	Kathiawar and Cutch	89·8	77·7	83·8	12·2	22·0	+2·2	+0·9	+1·3
	Sind	98·5	80·7	89·7	17·8	30·3	+2·7	+1·2	+1·5
	Baluchistan Hills	94·8	59·0	76·9	35·9	52·0	+1·8	−1·1	+2·9

Province.	Division.	Actual temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Rajputana and Central India.	Central India (East)	88·2	75·7	81·9	12·5	23·3	+2·8	+1·6	+1·2
	Rajputana (East), Central India (West)	93·9	78·7	86·3	15·2	29·5	+4·5	+2·7	+1·8
	Do. (West)	99·0	80·7	89·9	18·3	31·3	+3·7	+2·2	+1·5
Madras	East Coast (North)	90·2	78·7	84·5	11·5	21·6	+1·9	0	+1·9
	Hyderabad (South)	91·5	74·0	82·8	17·5	27·7	+4·5	+2·2	+2·3
	Madras (Central)	94·5	76·0	85·3	18·5	28·2	+3·1	+1·3	+1·8
	East Coast (Central)	94·0	78·5	86·2	15·5	28·7	+0·5	+0·3	+0·2
	Do. (South)	94·2	77·6	86·0	16·6	26·8	0	+0·9	−0·9
	Madras (South)	95·2	77·1	85·7	18·1	25·4	+1·2	+0·6	+0·6

During the first three days of the month temperature was approximately normal in Burma, Bengal and Assam, in defect in the Punjab and the United Provinces, and more or less above the normal in the remainder of Northern India and in the Peninsula. The excess was on the whole most marked in Gujarat and the Madras Deccan, and was considerably greater in the day than in the night temperature.

The following variation data illustrate the conditions obtaining during this period:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	1st August.	2nd August.	3rd August.
	°	°	°
Burma	+1·0	+0·1	+0·1
Assam	−0·1	+0·7	−1·6
Bengal	+0·5	+2·0	+0·7
Orissa	+0·9	+3·8	+2·3
Bihar	−0·9	+2·5	+1·8
Chota Nagpur	+1·8	+2·7	+1·3
United Provinces of Agra and Oudh	−2·8	−3·7	−1·6
Punjab	−1·7	−6·1	−1·0
Sind	+3·0	+1·5	+2·4
Rajputana	+2·9	+2·3	+3·4
Gujarat	+4·3	+4·1	+4·6
Central India	−1·3	+0·8	+2·8
Central Provinces	+1·2	+2·6	+3·7
Berar	+2·0	+2·6	+5·2
West Coast	+1·1	+2·4	+2·3
Bombay Deccan	+2·8	+1·1	+2·8
Mysore	+2·3	+2·3	+3·9
Madras Coast	+2·1	+3·0	+3·0
Madras Deccan	+4·1	+4·5	+5·1
South India	+1·0	+1·7	+2·7

Temperature increased rapidly in the Punjab and the United Provinces during the next two days and fell in the south and centre of the Peninsula, and on the 5th averaged 5° above the normal in the Punjab and 3° in defect on the Madras Coast.

The following table shows the conditions prevailing on the 5th:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 5th August.	Mean minimum temperature, 5th August.	Mean daily temperature, 5th August.
	°	°	°
Burma	+2·1	+1·4	+1·8
Assam	+0·5	+0·7	+0·6
Bengal	+0·9	+0·7	+0·8
Orissa	+0·6	−0·3	+0·2
Bihar	+0·3	−0·1	+0·1
Chota Nagpur	0	−0·1	−0·1
United Provinces of Agra and Oudh	+2·3	−1·3	+0·5
Punjab	+5·7	+3·9	+4·8
Sind	+4·9	0	+2·5
Rajputana	+5·9	+2·6	+4·3
Gujarat	+7·0	+1·5	+4·3
Central India	+7·2	+0·3	+3·8
Central Provinces	+7·2	+1·2	+4·2
Berar	+7·0	+2·0	+4·5
West Coast	+1·9	+2·1	+2·0
Bombay Deccan	+8·1	−0·2	+4·0
Mysore	+3·8	+2·0	+2·9
Madras Coast	−5·9	+0·2	−2·9
Madras Deccan	+1·6	+1·1	+1·4
South India	−1·8	+0·6	−0·6

The low temperature conditions in the coast districts of Madras passed away on the 6th and from the 7th to the 10th temperature was in excess over nearly the whole of the Indian region. The following variation data for the 6th, 8th and 10th illustrate this feature :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	6th August.	8th August.	10th August.
	°	°	°
Burma	+2·5	+0·8	+1·6
Assam	+0·6	−0·7	−3·7
Bengal	+1·4	+1·4	+1·3
Orissa	+1·6	+0·9	+2·2
Bihar	+2·1	+3·0	+1·7
Chota Nagpur	+1·5	+2·6	+2·6
United Provinces of Agra and Oudh	+0·5	+2·7	−0·4
Punjab	+4·4	+6·5	+4·8
Sind	+2·5	+1·6	−0·3
Rajputana	+5·2	+5·8	+3·9
Gujarat	+3·6	+3·7	+3·7
Central India	+2·4	+4·5	+2·2
Central Provinces	+3·8	+3·5	+1·1
Berar	+5·6	+5·6	+5·0
West Coast	+2·0	+2·7	+2·5
Bombay Deccan	+3·9	+4·2	+3·6
Mysore	+1·5	+3·1	+4·2
Madras Coast	−0·4	+2·6	+1·6
Madras Deccan	+3·1	+5·3	+5·7
South India	+1·3	+1·4	+1·7

The data indicate that temperature was on the whole most largely in excess in the Punjab. The following table, giving the largest variations at two stations in that province on each day, shews more fully than the averages given in the preceding statement, the character of the temperature conditions obtaining in that area during the period :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
6th August.	Rawalpindi	+8·8
	Khushab	+7·6
7th „	Rawalpindi	+6·2
	Sialkot	+6·2
8th „	Rawalpindi	+10·0
	Sialkot	+9·8
9th August	Rawalpindi	+13·4
	Sialkot	+11·4
10th „	Sialkot	+9·0
	Rawalpindi	+7·8

Weather was disturbed in Upper India from the 11th to the 14th. Numerous duststorms occurred in the Punjab plains and thunderstorms, in some cases accompanied with hail, in the hills. At the same time snow fell on the higher elevations in Kashmir. Temperature hence diminished rapidly and was largely below the normal. The area of greatest excess of temperature which showed in the North Punjab on the 10th was consequently transferred to the south of the Central Provinces and Hyderabad on the 11th. A heavy burst of rain in Bengal and Assam on the 11th and 12th gave a large temporary reduction of temperature in that area.

The following gives variation data for each day of the period :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	11th August.	12th August.	13th August.	14th August.
	°	°	°	°
Burma	+2·0	+1·9	+1·0	+0·7
Assam	−6·3	−6·8	−3·4	−1·3
Bengal	−3·3	−3·5	+0·4	+1·5
Orissa	+0·5	+0·2	+1·4	+3·6
Bihar	−1·8	−1·6	+0·7	+0·4
Chota Nagpur	−1·9	+0·5	+2·0	+3·3
United Provinces of Agra and Oudh	+1·7	+0·4	+1·4	+2·9
Punjab	+3·5	−2·3	−4·8	−1·5
Kashmir	−1·4	−7·5	−14·9	−9·7
Sind	+0·1	+0·8	+0·2	+1·6
Rajputana	+3·2	+3·1	+3·0	+4·2
Gujarat	+3·5	+2·8	+3·5	+3·7
Central India	+3·5	+1·1	+1·8	+3·9
Central Provinces	+3·0	+3·6	+3·7	+4·7
Berar	+5·3	+6·1	+7·1	+5·4
West Coast	+2·1	+2·1	+2·3	+2·1
Bombay Deccan	+3·1	+1·5	+3·3	+4·1
Mysore	+3·6	+2·5	+3·5	+4·0
Madras Coast	+2·5	+2·4	+2·7	+3·5
Madras Deccan	+4·5	+4·3	+5·4	+7·0
South India	+1·7	+0·3	+1·2	+1·4

With the clearing of the skies on the 15th temperature increased quickly in Upper India and was in moderate to large excess over practically the whole of Northern and Central India on the 16th and 17th.

The following gives data for these areas for the 15th and 17th :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	15th August.	17th August.
	°	°
Bengal	+1·8	+1·6
Orissa	+3·9	+2·3
Bihar	+3·4	+2·7
Chota Nagpur	+4·0	+4·4
United Provinces of Agra and Oudh	+3·7	+4·6
Punjab	+0·9	+4·7
Sind	+2·5	+2·8
Rajputana	+5·1	+8·0
Gujarat	+3·9	+4·7
Central India	+5·3	+5·9
Central Provinces	+4·9	+5·5
Berar	+6·9	+6·4

The Bombay current was determined largely across Southern India and the South and Central Deccan during this period and these areas hence received numerous showers, which produced a large fall of temperature.

The following table, giving temperature variation data for these areas from the 15th to the 17th, shows the amount of the change effected by these showers :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	15th August.	16th August.	17th August.
	°	°	°
Mysore	+5·9	+2·8	+1·3
Madras Coast	+2·2	−3·7	−2·2
Madras Deccan	+2·9	+0·3	−0·2
South India	+1·4	−2·1	−2·0

An important effect of the decrease of temperature in the Deccan was to displace the seat of largest excess of temperature from Hyderabad to Rajputana and the neighbouring districts.

The following variation data indicate its position on the 17th :—

STATION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 17th August.	Mean minimum temperature, 17th August.	Mean daily temperature, 17th August.
	°	°	°
Ajmer	+11·5	+8·7	+10·1
Jhansi	+10·5	+7·3	+8·9
Agra	+10·6	+6·3	+8·5
Hoshangabad	+11·4	+5·5	+8·5
Deesa	+11·2	+5·6	+8·4
Sirsa	+8·9	+7·3	+8·1
Jaipur	+10·6	+3·0	+6·8
Neemuch	+11·0	+3·6	+7·3
Sambhar	+9·7	+6·1	+7·9
Eikaner	+8·3	+4·9	+6·6

The temperature conditions during the remainder of the month were determined mainly by the precipitation accompanying the cyclonic storms of the period.

The first of these disturbances formed in the Bay on the 18th and 19th and, marching by a curved path across the head of the Peninsula, passed into Upper India on the 24th giving a moderate to heavy burst of rain along its path. The reduction of temperature due to this burst began in Ganjam and Central Madras on the 19th, and extended westwards across the northern half of the Peninsula to Gujarat on the 22nd and Lower Sind on the 23rd.

The following table, giving the divisional variations for each day of the period from the 19th to the 23rd, shows the westward extension of the area of deficient temperature :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	19th August.	20th August.	21st August.	22nd August.	23rd August.
	°	°	°	°	°
Madras Deccan	−2·1	−6·4	−1·8	+0·4	+2·4
Madras Coast	−2·0	−3·6	−0·9	+0·7	+1·4
Bombay Deccan	+3·3	−0·1	−1·0	−2·7	+0·4
West Coast	+2·0	+1·0	−0·6	−0·3	+1·5
Berar	+2·6	−5·0	−5·2	−1·5	+0·4
Central Provinces	+3·6	+0·4	−0·7	−0·5	+1·8
Central India	+6·4	+4·1	+2·3	−0·5	+1·5
Gujarat	+4·9	+4·2	+2·9	−3·5	−3·4
Sind	+2·7	+2·5	+3·4	+7·8	−1·5

Little or no rain fell during this period over the greater part of Northern India and the south of the Peninsula, and temperature was hence more or less in excess in these areas, as is shown by the following data :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	19th August.	20th August.	21st August.	22nd August.	23rd August.
	°	°	°	°	°
Bengal	+0·3	+0·5	+0·3	+2.3	+3·3
Orissa	+1·3	+0·4	—1·6	+1·2	+3·8
Bihar	+2·0	+2·0	+2·1	+3·6	+2·9
Chota Nagpur	+1·9	—0·6	—0·6	+0·9	+4·0
United Provinces of Agra and Oudh.	+3·1	+1·6	+2·3	+2·4	+3·6
Punjab	+5·2	+4·0	+4·9	+4·8	+4·9
Rajputana	+8·7	+9·6	+8·5	+3·5	+0·3
South India	+0·5	+0·2	+0·5	+1·4	+1·1

On the 24th the only areas in which temperature was below the normal were South India, Gujarat and Sind. The second storm of the month crossed the Orissa Coast on this day and advancing through Chota Nagpur and Central India broke up in West Rajputana and Sind on the 31st.

The rainfall accompanying its passage was heavier and more widespread than that given by the first storm, and caused a general and large reduction of temperature.

The following table, giving variation data for every second day of the period 25th to 31st, shews the changes of the temperature conditions effected by the rainfall accompanying the advance of this storm :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	25th August.	27th August.	29th August.	31st August.
	°	°	°	°
Burma	—0·9	+1·2	+1·3	—0·6
Assam	+1·8	+2·0	+3·3	+3·8
Bengal	+0·6	+0·4	+2·2	+2·2
Orissa	—4·2	+2·0	+2·0	+0·5
Bihar	+1·0	+0·2	+3·5	+1·0
Chota Nagpur	—1·2	—0·1	+2·8	+1·7
United Provinces of Agra and Oudh.	—1·2	—0·3	+0·1	—1·1
Punjab	+0·7	+1·2	—1·2	—1·3
Sind	—0·4	+0·9	+6·0	+3·0
Rajputana	+2·1	+2·0	—3·3	—2·6
Gujarat	—1·0	—1·5	—4·7	—2·1
Central India	—1·8	—1·4	+0·4	—0·5
Central Provinces	—0·4	—2·4	+0·4	+0·1
Berar	+0·4	—3·9	+0·3	—0·2
West Coast	+0·4	+0·5	+0·9	—0·2
Bombay Deccan	+2·3	+0·6	+1·6	—0·3
Mysore	+0·1	—0·3	+1·5	—1·4
Madras Coast	—4·3	—0·1	+0·1	—2·3
Madras Deccan	+1·8	+2·6	+2·7	+1·6
South India	—1·4	+0·1	+1·1	+0·1

The rapid rise of temperature in North-East India on the 29th accompanied the setting in of fine weather in that area due to the initiation of low pressure conditions over the Bay.

The preceding discussion shows that during the first three weeks of the month the variations of temperature from the normal were considerably greater than is usual in August, temperature being largely and persistently above the normal over the greater part of the interior of the country in consequence of a break in the rains. These conditions were on the whole most pronounced between the 13th and the 22nd during which period the highest temperatures of the month were recorded in North-Western and Central India and the Peninsula. These temperatures were in some cases higher than have been previously recorded in August.

With the termination of the break at the end of the third week temperature diminished rapidly and was approximately normal or in defect during the last seven or eight days of the month.

Winds.

Winds were, on the average of the month, largely above their normal strength at Port Blair and Diamond Island and feebler than usual at Rangoon.

The following data illustrate these features:—

Station.	Mean wind velocity in miles per diem.			
	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.	Percentage variation.
Port Blair	343	242	+101	+42
Diamond Island	243	193	+50	+26
Rangoon	39	110	−71	−65

The monsoon current was, on the other hand, more or less below its normal strength in Bengal, Bihar and Chota Nagpur.

This is shown by the following statement:—

Station.	Mean wind velocity in miles per diem.			
	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.	Percentage variation.
Chittagong	168	142	+26	+18
Calcutta	88	115	−27	−23
Saugor Island	313	315	−2	−1
Hazaribagh	170	185	−15	−8
Darbhanga	49	111	−62	−56

The data hence appear to show that the Bay current was nearly 10 per cent. weaker than usual in North-East India.

Winds were much more westerly than usual at Port Blair and Diamond Island, indicating a stronger determination than usual of the Bay current to Tenasserim and Lower Burma. They were, on the other hand, more directly from the south than usual on the Orissa and Bengal Coasts, thus showing that the portion of the current advancing across these coasts was directed chiefly towards North Bengal, Sikkim and Upper Assam.

The following data indicate the character and amount of the deflection:—

Station.	Mean wind direction.		
	Actual, August 1902.	Normal, August.	Increased southing.
Chittagong	S 2 E	S 25 E	+23
Calcutta	S 9 E	S 14 E	+5
Saugor Island	S 7 E	S 13 W	
False Point	S 31 W	S 47 W	+16

The monsoon trough of low pressure in the Gangetic Plain was, as in the previous month, further north than usual, its axis coinciding approximately with a line passing through the stations of Hazaribagh, Lucknow, Meerut Ludhiana, Montgomery and Dera Ismail Khan.

The following data define its position:—

Station.	Mean steadiness.			Mean wind direction.	
	Actual percentage, August 1902.	Normal percentage, August.	Variation of actual from normal, August 1902.	Actual, August 1902.	Normal, August.
Hazaribagh	10	8	+2	S 44 W	S 4 W
Allahabad	28	4	+24	N 53 W	N 16 E
Meerut	14	10	+4	S 36 W	S 55 E
Roorkee	10	22	−12	S 87 E	S 24 E
Ludhiana	11	11	0	N 45 W	S 59 E
Lahore	23	25	−2	S 31 E	S 80 E

The mean wind directions of Hazaribagh, Allahabad, Meerut and Ludhiana show clearly the northerly displacement of the trough and the extension of the westerly winds of the Bombay current much further north than usual.

Winds were not so steady or so strong as usual in the Punjab and Upper Sind.

The following data indicate these features:—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, August 1902	Normal precentage, August.	Variation of actual from normal, August 1902.	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.
Lahore	23	25	−2	66	69	−3
Ludhiana	11	11	0	61	39	+22
Peshawar	43	51	−8	62	93	−31
Jacobabad	54	59	−5	74	101	−27

Winds were approximately normal in strength in East Rjaputana, but blew from west-south-west instead of from west-north-west. They were, on the contrary, unusually strong in South-West Rajputana, and blew more directly from the west than usual.

The following gives direction and velocity data for the two representative stations :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, August 1902.	Normal, August.	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.
	°	°			
Jaipur . . .	S 62 W	N 66 W	103	118	—15
Deesa . . .	S 64 W	S 52 W	342	278	+64

The Bombay monsoon current was somewhat below its normal strength in the Konkan Coast districts and the centre and south of the Peninsula and slightly stronger than usual at its northern limits.

The following gives data showing the daily velocity of the current and its variations at eleven typical stations under its sole influence :—

	Station.	Mean wind velocity in miles per diem.		
		Actual, August 1902.	Normal, August.	Percentage variation from normal.
Coast	Kurrachee	400	397	+ 1
	Bombay	276	376	—27
	Karwar	88	87	+ 1
Interior	Deesa	342	278	+23
	Belgaum	452	517	—13
	Buldana	239	195	+23
	Khandwa	221	199	+11
	Hyderabad	174	203	—14
	Bellary	284	263	+ 8
	Mysore	228	333	—32
	Salem	46	93	—51

The increased air movement was as marked at the hill stations of Mount Abu and Pachmarhi as at the neighbouring plains stations.

The following gives data :—

Hill Station.	Mean wind velocity in miles per diem.		
	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.
Mount Abu	319	254	+65
Pachmarhi	253	206	+47

The mean wind directions varied somewhat irregularly from the normal at the West Coast stations and in the interior of the Peninsula, but were on the whole more northerly and less westerly than usual.

The following gives data in illustration :—

Station.	Mean wind direction.		
	Actual, August. 1902.	Normal, August.	Increased northing or decreased westing.
	°	°	
Karwar	N 75 W	N 87 W	+12
Sholapur	N 84 W	W	+ 6
Akola	N 61 W	N 67 W	+ 6
Khandwa	N 70 W	N 81 W	+11
Nagpur	N 78 W	N 80 W	+ 2
Hassan	N 78 W	N 87 W	+ 9
Bellary	N 73 W	N 87 W	+14

Winds were much steadier than usual and contained a strong westerly component on the Coromandel Coast, as represented by Madras.

The following data illustrate these features :—

Station.	Mean steadiness.			Mean wind direction.		
	Actual percentage, August 1902.	Normal percentage, August.	Variation of actual from normal, August 1902.	Actual, August 1902.	Normal, August.	Westerly Deflection.
				°	°	
Madras . .	69	60	+9	S 59 W	S 41 W	+18

Winds were on the whole somewhat stronger and steadier than usual in the Western Himalayas, but their mean directions varied very irregularly from the normal.

The following gives four examples :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, August 1902.	Normal percentage, August.	Variation of actual from normal, August 1902.	Actual, August 1902.	Normal, August.	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.
Leh . . .	69	39	+30	S 27° W	S 69° W	54	39	+15
Simla . . .	42	22	+20	N 3 E	N 32 E	108	81	+27
Chakrata .	52	46	+ 6	S 15 E	S 75 W	207	111	+96
Ranikhet . .	35	25	+10	S 72 W	S 58 W	92	50	+42

Winds were considerably below the normal strength at Darjeeling and their mean direction was S. 22°W., the normal being S. 81°E. The air movement towards North Bengal and Upper Assam was hence as marked at the level of Darjeeling as at the coast stations of Bengal.

Winds were less steady and lighter than usual at Zanzibar and the Seychelles and contained an abnormal westerly component at the former station.

The following gives data for these stations :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, August 1902.	Normal percentage, August.	Variation of actual from normal, August 1902.	Actual, August 1902.	Normal, August.	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.
Zanzibar . .	63	76	—13	S 3° W	S 9° E	149	168	—19
Seychelles . .	85	92	— 7	S 39 E	S 36 E	292	323	—31

The air movement over the Indian area during the month was hence characterized by the following features :—

(1) Winds were remarkably strong at Port Blair and Diamond Island and were more westerly than usual.

(2) Winds were approximately normal in strength in Bengal, but were more southerly than usual in direction thus showing a stronger set of the current than usual to North Bengal and Upper Assam.

(3) At Darjeeling the winds exhibited the same abnormal tendency of the air movement towards the north as at the plains stations in Bengal.

(4) Winds were much weaker than usual in Bihar and of about normal strength in Chota Nagpur, the United Provinces and the Punjab.

(5) The trough of low pressure lay over the North Gangetic Plain and in consequence, the westerly winds of the Bombay current extended much further north than usual, reaching into Central India and the south and west of the Gangetic Plain.

(6) The Bombay monsoon current was below its normal strength during the greater part of the month and more especially between the 12th and the 17th.

(7) Winds were weaker than usual in the Konkan Coast districts and the centre and south of the Peninsula, but were slightly above their normal intensity in Berar, the Central Provinces, South-West Rajputana and Lower Sind due to the influence of the storms of the month.

(8) Winds were more northerly and less westerly than usual over the greater part of the Peninsula and were hence directed chiefly to the coast districts of Madras.

(9) Winds were on the whole stronger than usual at the hill stations in Upper and Central India.

Humidity and Cloud.

The month was unusually dry over by far the greater part of the country due in part to an actual deficiency in the amount of aqueous vapour—a result of the weakness of the monsoon currents—and in part to increased temperature, also an indirect effect of the same cause.

The air contained slightly more aqueous vapour than usual in Burma, Bengal, Orissa and Bihar. Temperature was, however, above the normal in these areas and hence the relative humidity was normal or in slight defect.

The following gives data in illustration :—

Province or Division.	Absolute humidity.			Relative humidity.		
	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.
	"	"	"	%	%	
Burma	·893	·881	+·012	87	89	—2
Bengal	·964	·950	+·014	84	87	—3
Orissa	·965	·933	+·032	85	85	0
Bihar	·994	·961	+·033	83	84	—1

The mean relative humidity in this area was most largely in defect at Calcutta (—5) and Saugor Island and Diamond Island (each —3).

The air was on the average of the month much drier than usual in Chota Nagpur, the United Provinces, the Punjab, Rajputana, Lower Sind, the Central Provinces, Berar, the West Coast, the Deccan and Mysore. This was (except in the case of Lower Sind, the West Coast and Mysore) a result partly of deficiency of aqueous vapour and partly of higher temperature than usual. The mean relative humidity was 10 or upwards in defect in this area, at Peshawar (—12), Ludhiana and Jaipur (each —11) and Deesa (—10).

The following gives comparative data for this area of decreased humidity :—

Province or Division.	Absolute humidity.			Relative humidity.		
	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.
	"	"	"	%	%	
Chota Nagpur	·784	·799	—·015	79	85	— 6
United Provinces	·866	·871	—·005	79	82	— 3
Punjab	·774	·839	—·065	58	66	— 8
Lower Sind	·890	·869	+·021	76	79	— 3
Rajputana	·773	·810	—·037	68	79	—11
Central Provinces	·781	·800	—·019	72	80	— 8
Berar	·691	·725	—·034	70	79	— 9
Bombay Deccan	·652	·658	—·006	74	80	— 6
West Coast	·868	·853	+·015	83	87	— 4
Madras Deccan	·644	·658	—·014	58	63	— 5
Mysore	·620	·613	+·007	73	77	— 4

The air was somewhat damper than usual, both absolutely and relatively, in South India and the Madras Coast districts.

The mean relative humidity of the month was 4 in excess at Madras and 1 in excess at Salem.

The humidity conditions at the hill stations varied irregularly from the normal. Thus, the mean humidity of the month was in considerable excess at Srinagar and Leh, normal at Kailang, Chakrata and Katmandu and more or less in defect at the remaining stations.

The following gives data for the stations at which the variations were most marked :—

Hill Station.	Absolute humidity.			Relative humidity.		
	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.	Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1901.
	"	"	"	%	%	
Srinagar	·660	·615	+·045	83	77	+6
Mount Abu	·596	·609	—·013	82	91	—9
Quetta	·333	·384	—·051	38	45	—7
Pachmarhi	·667	·659	+·008	84	90	—6
Simla	·487	·528	—·041	85	91	—6
Chikalda	·656	·643	+·013	89	94	—5

The driest stations in the plains of India during the month, as measured by the relative humidity, were Peshawar (49 per cent.), Ludhiana (62 per cent.), Lahore (63 per cent.), Jaipur (65 per cent.), Sholapur (63 per cent.), Dessa (65 per cent.) and Bellary (58 per cent).

The air was, on the other hand, almost saturated throughout the month at the following stations :—

Station.	Actual relative humidity, August 1902.
	%
Darjeeling	93
Chakrata	92
Muktesar	91

It is noteworthy that humidity was normal at Aden and Zanzibar, and largely in excess at Perim (+8) and the Seychelles (+7).

The chief features of the mean hygrometric conditions of the month in India were as follows :—

(1) Slightly increased humidity in the Madras Coast districts and South India.

(2) Decreased humidity over Burma and the whole of Northern and Central India, Baluchistan, the Deccan, the West Coast and Mysore. The deficiency was large and marked in the Punjab, Rajputana, the Central Provinces and Berar. The mean humidity was 10 and upwards below the normal at Peshawar (—12), Jaipur and Ludhiana (each —11) and Deesa (—10).

(3) Considerable excess of humidity in the valley of Kashmir and in Thibet, as represented by Leh.

The variations of the mean cloud amount of the month from the normal corresponded closely with those of the humidity conditions over the greater part of the country.

There was somewhat more cloud than usual at Port Blair and in Bihar, Chota Nagpur, the Madras Coast districts, Hyderabad, South India and parts of Mysore.

The following gives data for stations in these areas:—

Province or Division.	Station.	Mean cloud amount. Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.
Bay Islands	Port Blair	7·8	7·5	+0·3
Bihar	Darbhanga	6·6	6·2	+0·4
Chota Nagpur	Hazaribagh	9·8	9·0	+0·8
Madras Coast	Madras	6·8	6·6	+0·2
Hyderabad	Hyderabad	7·4	6·8	+0·6
South India	Salem	7·1	6·3	+0·8
Mysore	Bangalore	7·9	6·6	+1·3
	Mysore	9·3	8·5	+0·8

Over the remainder of India and in Burma the mean cloud amount of the month was more or less below the normal. The deficiency was moderately large over the greater part of North-Western India, the Central Provinces, Berar and the Konkan, where it ranged between 1·0 and 2·8. It was more than 1·5 at the stations for which data are given below:—

Station.	Mean cloud amount. Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.
Kurrachee	3·9	6·7	−2·8
Ludhiana	3·4	5·8	−2·4
Roorkee	4·6	6·4	−1·8
Jaipur	5·7	7·4	−1·7
Meerut	4·9	6·5	−1·6

The cloud amount was hence most largely in defect in Lower Sind, East Rajputana, the north-western districts of the United Provinces and the South-East Punjab or in the districts in which the humidity and rainfall were also in marked defect.

Skies were less clouded than usual in Baluchistan and at all the hill stations in Northern and Central India except Kailang and Katmandu. The variations of cloud at these stations were hence similar in character to those at the neighbouring plains stations.

The following gives data for twelve stations:—

Hill Station.	Mean cloud amount. Actual, August 1902.	Normal, August.	Variation of actual from normal, August 1902.
Chikalda	7·0	8·9	−1·9
Pachmarhi	6·9	8·7	−1·8
Simla	7·1	8·9	−1·8
Darjeeling	7·3	8·9	−1·6
Mount Abu	7·6	8·5	−0·9
Leh	4·3	5·2	−0·9
Ranikhet	8·0	8·7	−0·7
Chakrata	8·0	8·6	−0·6
Srinagar	3·6	4·0	−0·4
Quetta	1·2	1·3	−0·1
Katmandu	7·3	7·1	+0·2
Kailang	6·6	6·5	+0·1

The mean cloud proportion of the month was in large defect at Perim (−2·1) and approximately normal at the Seychelles (+0·5). It was, on the other hand, in moderate to large excess at Aden (+1·8) and Zanzibar (+1·3).

The following summarizes the chief features of the mean cloud distribution of the month:—

(1) Cloud was in slight excess at Port Blair and in Bihar, Chota Nagpur, Madras and Hyderabad and in considerable excess in the part of Mysore represented by Bangalore (+1·3) and Mysore (+0·8).

(2) Cloud was in slight defect in Burma, Bengal, Orissa, the east of the United Provinces, North Mysore and Central Madras.

(3) The mean cloud amount of the month was largely

below the normal in the Punjab, Lower Sind, Rajputana, the north-western districts of the United Provinces, the Central Provinces and Berar. The deficiency was greatest at Kurrachee (—2·8) and Ludhiana (—2·4).

Rainfall.

Weather was rainy over the greater part of the country during the first two days of the month, but an unfavourable change (due to a large decrease in the strength of the Bombay current) occurred on the 3rd when a break set in over practically the whole of North-Western and Central India and the Deccan and held until the 18th or 19th. Burma, Bengal and Assam, on the other hand, obtained steady daily rain during this period and South India and the Circars very favourable showers.

The monsoon current strengthened after the 19th and gave fairly general and in places copious rain during the remainder of the month. A series of three storms formed in rapid succession over the Bay during this short period and exercised an important influence on the distribution of rainfall. The first storm of the series crossed the Ganjam Coast on the 19th and travelling along a curved path through the Central Provinces, Central India, South Rajputana and Sind broke up in the Punjab on the 24th. It gave a moderate burst of rain to the Central Provinces, Central India, Rajputana and Sind and an excessive downpour in Gujarat and Kathiawar. The second storm of the series formed on the 22nd and 23rd and advancing by a somewhat more northerly course than its predecessor passed through Chota Nagpur, Central India and Central Rajputana and disappeared in West Rajputana on the 31st. It occasioned moderately heavy rain over the greater part of Northern and Central India, and heavy cyclonic downpours in Gujarat. The last storm of the series originated on the 29th and was approaching the Orissa Coast on the 31st on which day moderate rain was falling over the whole of Burma, North-East India and the Peninsula. These storms were, during their formation and earlier stages of advance, maintained almost solely by the Bengal current, and in the later stages by the Arabian Sea current. As usually happens under such circumstances, the Bay current fluctuated considerably in strength from day to day, being above the normal strength during the formation of each storm and weaker than usual after its passage inland. Hence the weather was exceedingly variable in North-East India during this period, intervals of fine weather alternating with periods of moderate rain.

The distribution of rainfall was determined very largely by the following factors:—

(1) The weakness of the currents during the first nineteen days, during the greater part of which period an almost complete break obtained over nearly the whole of North-Western and Central India and the Deccan. A similar extensive and prolonged break, it may be noted, obtained in the first three weeks of August 1883.

(2) The abnormal pressure conditions which determined the Bay current more largely than usual to North Bengal and Assam during the first two weeks of the month.

(3) The prevalence of strongly-marked monsoon conditions between the 20th and the end of the month.

(4) The tracks and intensity of the two storms which followed in rapid succession across Northern India. The effect of these storms was to concentrate the rainfall in the narrow belt of country traversed by them, and to diminish it in areas away from their path. A remarkable feature of these storms was the torrential downpours they gave in Gujarat and Kathiawar which fully compensated for the deficiency obtaining in that area, and ended the drought which had prevailed since the middle of June thus averting a serious scarcity.

The rainfall of the month was more or less in excess in the following areas:—

(1) Upper Burma.

(2) North Bengal, Orissa, Bengal Hills and Assam (Brahmaputra and Hills). The excess was greatest in Assam (Brahmaputra) where it averaged 22 per cent. of the normal.

(3) Gujarat, Kathiawar, Cutch and Sind. The excess in these areas was due solely to heavy cyclonic rainfall during the last ten days of the month and was most marked in Gujarat, in which it averaged 43 per cent.

(4) The whole of Madras with the exception of Malabar and the central and southern districts. The excess in this area ranged from 21 per cent. in East Coast, South, to 51 per cent. in East Coast, Central.

The rainfall of the month was below the normal over the remainder of the country. The deficiency was slight to moderate except in the divisions named below:—

South Oudh (51 per cent.); United Provinces, Central (59 per cent.); United Provinces, East (46 per cent.); United Provinces, East Submontane (45 per cent.); Punjab, Submontane (45 per cent.); Punjab Hills (44 per cent.), and Rajputana, East, and Central India, West, (42 per cent).

The rainfall of the month was hence in serious defect in South Oudh and the central districts of the United Provinces, which obtained barely half their normal amounts.

The following table gives comparative rainfall data for 57 meteorological divisions of the Empire:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, August 1902.	Average normal, August.	Average actual, August 1902.	Average normal, August.	Variaon of actua from normal, August 1902.
				Inches.	Inches.	Inches.
Burma	Tenasserim	28·4	26·9	37·93	42·56	—4·63
	Lower Burma (Deltaic)	22·8	24·9	16·99	22·08	—5·09
	Central do	15·5	18·1	9·08	11·00	—1·92
	Upper do	10·6	10·3	8·21	7·28	+0·93
	Arakan	24·7	26·0	24·09	40·03	—15·94
Bengal and Assam	Eastern Bengal	16·9	18·3	15·44	16·76	—1·32
	Assam (Surma)	19·9	21·7	19·76	21·51	—1·75
	Do. (Hills)	19·8	21·4	25·62	23·04	+2·58
	Do. (Brahmaputra)	15·6	16·2	18·52	15·18	+3·34
	Deltaic Bengal	14·3	16·0	11·43	12·12	—0·69
	Central do.	12·7	15·1	9·54	11·39	—1·85
	North do.	16·4	15·8	20·34	17·58	+2·76
	Bengal Hills	23·0	23·5	24·25	22·76	+1·49
	Orissa	15·7	15·3	12·64	12·21	+0·43
	Chota Nagpur	13·4	16·5	8·33	10·13	—1·80
	Bihar (South)	10·1	13·3	7·12	11·54	—4·42
	Do. (North)	12·3	13·5	9·72	12·26	—2·54
United Provinces of Agra and Oudh.	United Provinces (East)	10·7	13·1	6·10	11·39	—5·29
	Oudh (South)	7·7	12·3	5·45	11·19	—5·74
	Do. (North)	9·3	12·4	7·03	11·68	—4·65
	United Provinces (Central)	0·9	12·0	4·30	10·55	—6·25
	Do. do. (West)	6·2	9·4	7·14	7·90	—0·76
	Do. do. (East Submontane)	10·1	12·7	6·47	11·69	—5·22
	Do. do. (West do.)	9·6	12·8	11·43	14·12	—2·69
	Do. do. (Hills)	13·3	18·0	13·82	17·58	—3·76
Punjab and North-West Frontier Province.	Punjab (South-East)	4·8	7·3	4·87	6·42	—1·55
	Do. (South)	3·7	5·0	3·06	4·18	—1·12
	Do. (Central)	3·7	5·2	3·63	4·82	—1·19
	Do. (Submontane)	5·7	8·0	4·53	8·25	—3·72
	Do. (Hills)	11·6	14·7	9·17	16·35	—7·18
	Do. (North)	5·4	5·9	3·83	5·04	—1·21
	Do. (West)	2·2	2·9	2·00	2·15	—0·15
Bombay and Malabar Coast Districts (Madras).	Malabar	16·9	21·4	15·29	20·32	—5·03
	Travancore	11·3	...	7·65	...	...
	Madras (South Central)	6·0	5·6	4·72	3·49	+1·23
	Coorg	14·7	...	8·88	...	...
	Mysore	6·6	8·3	3·20	5·09	—1·89
	Konkan	18·0	24·7	20·23	24·82	—4·59
	Bombay Deccan	6·0	9·7	3·60	5·93	—2·33
	Hyderabad North	10·0	11·4	6·50	7·89	—1·39
	Khandesh	7·4	10·3	4·81	6·32	—1·51
Central Provinces and Berar.	Berar	7·6	10·1	6·81	6·92	—0·11
	Central Provinces (West)	10·1	13·0	9·14	10·59	—1·45
	Do. (Central)	10·0	15·1	8·20	13·72	—5·52
	Do. (East)	14·2	15·0	11·83	13·81	—1·98
Bombay (North)	Gujarat	10·7	15·3	14·02	9·79	+4·23
	Kathiawar and Cutch	8·2	8·4	8·59	6·75	+1·84
	Sind	2·8	2·2	2·44	2·21	+0·23
	Baluchistan Hills	1·2	1·3	0·63	0·80	—0·17
Rajputana and Central India.	Central India (East)	8·0	12·9	6·85	11·06	—4·21
	Rajputana (East), Central India (West)	5·7	9·1	4·28	7·43	—3·15
	Rajputana (West)	4·4	4·3	3·12	3·32	—0·20
Madras	East Coast (North)	13·8	11·0	10·17	7·51	+2·66
	Hyderabad South	9·3	10·5	5·70	6·55	—0·79
	Madras (Central)	6·3	6·6	3·54	4·12	—0·58
	East Coast (Central)	8·2	5·8	5·23	3·47	+1·76
	Do. (South)	8·2	7·2	6·05	4·99	+1·06
	Madras (South)	2·4	2·8	1·47	1·62	—0·15

The preceding data show that the rainfall of the month was more or less in defect in 43 out of the 56 rainfall divisions for which the normals are available.

The deficiency was not only much more widespread, but was also greater in amount than the excess, and hence on the mean of all divisions the rainfall of the month was 1·83 inches or 16 per cent. below the normal over India.

The month was one of fairly steady rain in Bengal. During the first two weeks the rainfall was due to ordinary monsoon winds which were, by the abnormal pressure conditions of the period, determined chiefly to the northern districts. During the remainder of the month the rainfall occurred in connection with cyclonic disturbances and was hence heaviest in Orissa and Deltaic Bengal, the areas which lay nearest to the tracks of the storms.

The chief periods of rainfall were as follows:—

1st.—From the 1st to the 13th, during which East and North Bengal and Sikkim obtained moderate to heavy, rain and the remainder of the province light to moderate rain. The 10th and 11th were the days of heaviest precipitation.

The following gives some of the more remarkable daily falls recorded during the period:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Noakhali	Harishpur	4th August	6·60
Mymensingh	Nalitabari	10th ,,	9·99
Jalpaiguri	Baxa	10th ,,	9·09
Bogra	Bogra	10th ,,	7·30
Darjeeling	Kurseong	11th ,,	13·25
Cooch Behar	Fulbari	11th ,,	9·57
Darjeeling	Mongpoo	11th ,,	9·06
	Siliguri	11th ,,	9·00
Chittagong	Kutubdia	11th ,,	8·75
Jalpaiguri	Alipur Duar	11th ,,	8·65
Chittagong	Chittagong	11th ,,	8·45
Mymensingh	Mymensingh	11th ,,	7·96
Darjeeling	Darjeeling	11th ,,	7·91
Mymensingh	Netrakona	11th ,,	7·56
Cooch Behar	Mathabhanga	11th ,,	7·42
Mymensingh	Durgapur	11th ,,	7·10
Cooch Behar	Cooch Behar	11th ,,	6·92
Chittagong	Cox's Bazar	12th ,,	6·84

According to the *Pioneer* newspaper 22 inches rain fell at Pugla Jhora on the 10th and 11th. This heavy burst caused serious breaches in the railway to Darjeeling, and blocked the line for several days.

2nd.—From the 19th to the 21st. The rainfall during this period accompanied the formation and advance of the first cyclonic storm of the month, and was moderate in amount. Only one of the rain recording stations obtained more than 5 inches in 24 hours during this burst.

3rd.—From the 24th to the 27th, during the advance of the second storm of the month from the head of the Bay to Central India. The whole of the province received rain during this period.

The fall was heaviest in Orissa and South-West Bengal light in North Bengal, and moderate in other divisions.

The following falls, exceeding 5 inches in 24 hours, were recorded during this period:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Midnapore	Panskura	24th August	7·35
	Tamluk	24th ,,	5·49
Angul	Dhenkanal	24th ,,	5·10
Puri	Gop	25th ,,	5·56
Cuttack	Kendrapara	25th ,,	5·45

4th.—The 30th and 31st, when the third storm of the month was forming over the head of the Bay. The rainfall was moderate in Orissa and East Bengal, and light and scattered over the remainder of the province.

The following gives a summary of the rainfall data of the month:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, August 1902.	Average normal, August	Variation of actual from normal, August 1902.	Percentage variation from normal.	Average actual, August 1902.	Average normal, August.
	Inches.	Inches.	Inches.			
Eastern Bengal	15·44	16·76	−1·32	− 8	16·9	18·3
Deltaic Bengal	11·43	12·12	−0·69	− 6	14·3	16·0
Central Bengal	9·54	11·39	−1·85	−16	12·7	15·1
North Bengal	20·34	17·58	+2·76	+16	16·4	15·8
Bengal Hills	24·25	22·76	+1·49	+ 7	23·0	23·5
Orissa	12·64	12·21	+0·43	+ 4	15·7	15·3
Chota Nagpur	8·33	10·13	−1·80	−18	13·4	16·5
South Bihar	7·12	11·54	−4·42	−38	10·1	13·3
North Bihar	9·72	12·26	−2·54	−21	12·3	13·5

The statement shows that the rainfall of the month varied by less than 10 per cent. from the normal over the greater part of the province and was hence practically normal. It was 16 per cent. in excess in North Bengal, and in moderate to considerable defect in Bihar.

The following gives data for all districts in which the rainfall was more than 35 per cent. in defect :—

District.	Rainfall.			
	Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Palamau	5·45	13·42	—7·97	—59
Singhbhum	7·17	14·56	—7·39	—51
Gaya	6·69	11·72	—5·03	—43
Shahabad	6·63	11·64	—5·01	—43
Hazaribagh	7·17	12·58	—5·41	—43
Bankura	6·98	11·89	—4·91	—41
Monghyr	6·86	11·41	—4·55	—40
Burdwan	7·50	11·76	—4·26	—36

The data show that the deficiency was serious in the area including the Palamau and Singhbhum districts which obtained less than half the normal fall of the month.

Assam received general rain during the first three weeks of the month. The falls were heaviest from the 9th to the 11th.

The following were the most noteworthy daily falls registered on these days :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Lakhimpur	Dum Duma	9th August.	6·88
	Pathalipam	9th "	6·44
Khasi and Jaintia Hills.	Cherrapoonjee	10th "	28·69
	Mauphlang	10th "	15·27
	Wahmaulien	10th "	12·35
	Laitlyngkot	10th "	12·20
Lakhimpur	Pathalipam	10th "	8·95
	Balijan	10th "	8·80
Sylhet	Sunamganj	10th "	8·24
Lakhimpur	Sadiya	10th August.	8·00
	Wilton	10th "	7·10
	Dibrugarh	10th "	6·86
Sylhet	Lalakhal	10th "	6·85
Lakhimpur	Dhakuakhana	10th "	6·35
Garo Hills	Tura	10th "	6·34
Khasi and Jaintia Hills.	Jowai	10th "	6·27
Goalpara	Goalpara	10th "	6·20
	Kachugaon	10th "	6·05
Khasi and Jaintia Hills.	Upper Shillong	10th "	5·79
Lakhimpur	North Lakhimpur	10th "	5·26
Darrang	Kabira	10th "	5·21
Lakhimpur	Harmati	10th "	5·17
Goalpara	Dhubri	10th "	5·10
	Damra	10th "	5·10
Darrang	Orangajuli	10th "	5·04
Khasi and Jaintia Hills.	Cherrapoonjee	11th "	22·71
	Wahmaulien	11th "	21·20
	Laitlyngkot	11th "	15·66
Goalpara	Marnai	11th "	10·35
Khasi and Jaintia Hills.	Upper Shillong	11th "	9·80
Goalpara	Bijni	11th "	8·40
Sylhet	Sunamganj	11th "	8·33
Khasi and Jaintia Hills.	Mauphlang	11th "	8·05
	Shillong	11th "	7·45
	Jowai	11th "	7·20
Goalpara	Kachugaon	11th "	7·20
Lakhimpur	Sadiya	11th "	6·70
Sylhet	Lalakhal	11th "	5·55
Darrang	Kerkeriya	11th "	5·20

A partial break occurred from the 22nd to the 24th during which period the second cyclonic storm of the month in the Bay was in course of formation. Fairly general and moderate rain fell from the 25th to the 27th after which a second break set in and continued during the remainder of the month.

The rainfall of the month was normal in amount in Assam Surma, and in slight to moderate excess in the Brahmaputra Valley and the Hills divisions.

The following table gives mean rainfall data for the eight plains districts of the province:—

District.	Rainfall. Average actual, August 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	18·87	20·86	−1·99	−10
Sylhet	21·02	22·16	−1·14	−5
Goalpara	26·97	16·31	+10·66	+65
Kamrup	13·47	12·33	+1·14	+9
Darrang	17·73	13·32	+4·41	+33
Nowgong	14·69	13·39	+1·30	+10
Sibsagar	19·11	14·49	+4·62	+32
Lakhimpur	24·39	21·77	+2·62	+12

A remarkable feature of the precipitation of the month was the irregularity of its distribution, neighbouring stations exhibiting large variations of opposite kind. The following data illustrate this feature:—

District.	Station.	Rainfall. Average actual, August 1902.	Average normal, August.	Variation of actual from normal, August 1902.
		Inches.	Inches.	Inches.
Cachar	Dewan	29·72	19·70	+10·02
	Monierkhal	15·94	23·57	−7·63
Sylhet	Lalakhal	47·64	44·23	+3·41
	Dullabcherra	11·86	18·23	−6·37
Kamrup	Mandakata	24·73	10·16	+14·57
	Barduar	13·18	18·95	−5·77
Darrang	Kerkeriya	25·37	14·62	+10·75
	Singrimari	10·23	10·33	−0·10
Nowgong	Sukimbari	19·34	12·83	+6·51
	Sekoni	13·40	15·62	−2·22
Lakhimpur	Pathalipam	49·55	30·29	+19·26
	Dum Duma	20·16	51·61	−31·45

The rainfall of the month was much lighter than usual in the United Provinces, due chiefly to the occurrence of a prolonged break between the 11th and 23rd.

Rain fell over the province on the first two days of the month during the passage of the last storm of the month of July through that area.

Heavy downpours were received on the 2nd (when the storm was breaking up) in the Meerut, Bulandshahr, Bijnor, Muzaffarnagar, Garhwal and Naini Tal districts. The following data illustrate this feature:—

District.	Average actual rainfall in 24 hours preceding 8 A.M. of 2nd.	Heaviest rainfall in district.
	Inches.	Inches.
Meerut	6·07	8·80
Bulandshahr	3·77	7·25
Bijnor	7·74	9·08
Muzaffarnagar	5·58	8·55
Garhwal	3·21	7·10
Naini Tal	2·68	5·64

Weather was showery during the next seven or eight days. The rainfall during this period was moderately heavy in the Dehra Dun and Naini Tal districts and light in the western districts. A break set in on the 11th and lasted until the 23rd. Scattered showers occurred during this period chiefly in the hill and submontane districts. Fairly general rain recommenced on the 24th and held during the next four or five days.

This burst accompanied the advance of the second storm of the month across Northern India and was, on the whole, heaviest in the Bulandshahr, Dehra Dun, Bijnor and Muzaffarnagar districts.

The following large falls were recorded during this period:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Dehra Dun	Mussooree	24th August	8·50
Bulandshahr	Khurja	28th „	6·83
Bijnor	Dhampur	28th „	6·40
Muzaffarnagar	Budhana	28th „	5·78
	Kairana	29th „	5·55
	Khandla	29th „	5·10

This burst was followed by another partial break which continued until the end of the month. Numerous showers fell during this period in the hill and submontane districts, but were generally light to moderate in amount.

The total rainfall of the month was more or less below the normal over the whole province, as is shown by the following statement:—

District.	Rainfall.				Number of rainy days.	
	Average actual, August 1902.	Average normal, August.	Variation of actual from normal, August. 1902.	Percentage variation from normal.	Average actual, August 1902.	Average normal, August.
	Inches.	Inches.	Inches.			
United Provinces, East	6·10	11·39	−5·29	− 46	10·7	13·1
South Oudh	5·45	11·19	−5·74	− 51	7·7	12·3
North „	7·03	11·68	−4·65	− 40	9·3	12·4
United Provinces, Central	4·30	10·55	−6·25	− 59	6·9	12·0
„ „ West	7·14	7·90	−0·76	− 10	6·2	9·4
„ „ East Sub-montane.	6·47	11·69	−5·22	− 45	10·1	12·7
„ „ West Sub-montane.	11·43	14·12	−2·69	− 19	9·6	12·8
„ „ Hills	13·82	17·58	−3·76	− 21	13·3	18·0

The preceding statement indicates that the deficiency was most marked in South Oudh, in which it averaged 51 per cent., and in the United Provinces, Central, where it was 59 per cent. The deficiency was serious in the districts for which data are given below:—

District.	Rainfall.			
	Average actual, August 1902.	Average normal, August.	Variation of actual from normal, August 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cawnpore	2·33	10·35	−8·02	−77
Jhansi	3·77	11·26	−7·49	−67
Hamirpur	3·72	10·66	−6·94	−65
Hardoi	4·22	10·65	−6·43	−60
Jaunpur	4·79	11·88	−7·09	−60
Unao	4·37	10·68	−6·31	−59
Farrukhabad	4·04	9·94	−5·90	−59
Basti	5·48	12·52	−7·04	−56
Shahjahanpur	4·60	10·25	−5·65	−55
Ghazipur	4·91	11·03	−6·12	−55
Fatehpur	4·59	10·28	−5·69	−55
Jalaun	4·91	10·46	−5·55	−53
Etawah	4·77	10·06	−5·29	−53
Agra	3·85	8·21	−4·36	−53
Etah	4·29	9·03	−4·74	−52
Rai Bareli	5·56	11·46	−5·90	−51

The following gives the smallest total amounts recorded in this area:—

District.	Station.	Actual rainfall of month.
		Inches.
Cawnpore	Bilhaur	1·95
Fatehpur	Khajwa	1·80
Basti	Khalilabad	1·75
Cawnpore	Bhognipur	1·71
Hamirpur	Bijanagar	1·54
Farrukhabad	Thatia Tarwa	1·51
Cawnpore	Akbarpur	1·32
Jhansi	Pachwara	1·31
Cawnpore	Derapur	1·23

Although the rainfall of the month was below the normal in all divisions there were some cases of local excess.

The following table gives data for these exceptions:—

District.	Rainfall.			
	Average actual, August 1902.	Average normal, August.	Variation of actual from normal, August 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Muzaffarnagar	16·44	8·28	+8·16	+99
Meerut	11·38	8·17	+3·21	+39
Bulandshahr	10·75	7·88	+2·87	+36
Bijnor	15·65	12·39	+3·26	+26

Rain occurred in the plains districts of the Punjab almost solely during four periods, *viz.*, the 1st to the 3rd, the 12th and 13th, the 24th and 25th, and the 29th to the 31st. The rainfall was, on the whole, heaviest and most general on the 1st, 2nd, 25th, 30th and 31st. No rain fell in the Mooltan, Muzaffargarh and Dera Ghazi Khan districts during the first and fourth periods.

The following table gives the most noteworthy falls in 24 hours recorded during the month in the province and the dates of their occurrence:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Gurgaon	Ferozepore	1st August	3·70
Ferozepore	Ferozepore City	2nd „	4·10
Amritsar	Buggeh	25th „	4·50

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Karnal	Panipat	25th August	4·47
Gujranwala	Gujranwalla	25th ,,	4·35
Gurgaon	Punahana	25th ,,	4·10
Amritsar	Amritasar Jail Hospital	25th ,,	4·03
	Amritasar	25th ,,	4·00
Gujarat	Gujarat	25th ,,	3·68
Karnal	Karnal	30th ,,	3·70
Hoshiarpur	Dasuya	31st ,,	5·98
Hissar	Tohana	31st ,,	4·50
Umballa	Kasauli	31st ,,	4·02

In the hill districts fairly general rain was received daily throughout the month except during the third week when an almost complete break obtained. The heaviest daily falls were less than two inches in amount at nine stations out of fourteen, and were hence moderate.

The following table, giving comparative data for the seven rainfall divisions into which the province is divided, indicates the general character of the distribution of the rainfall of the month:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.	Average actual, August 1902.	Average normal, August.
	Inches.	Inches.	Inches.			
South-East Punjab	4·37	6·42	—1·55	—24	4·8	7·3
South Punjab	3·06	4·18	—1·12	—27	3·7	5·0
Central Punjab	3·63	4·82	—1·19	—25	3·7	5·2
Punjab Submontane	4·53	8·25	—3·72	—45	5·7	8·0
Punjab Hills	9·17	16·35	—7·18	—44	11·6	14·7
North Punjab	3·83	5·04	—1·21	—24	5·4	5·9
West Punjab	2·00	2·15	—0·15	— 7	2·2	2·9

The rainfall of the month was hence more or less below the normal over the whole province. The deficiency was largest in actual amount in the hill districts (7·18 inches or 44 per cent.) and relatively to the normal in the submontane division (45 per cent.).

Data are given below for the districts in which the rainfall of the month was seriously in defect (over 40 per cent.):—

District.	Rainfall.			
	Average actual, August 1902.	Average normal, August.	Variation of actual from normal, August 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Muzaffargarh	0·40	1·81	—1·41	—78
Mooltan	0·36	1·34	—0·98	—73
Rohtak	1·84	5·28	—3·44	—65
Umballa	3·62	9·99	—6·37	—64
Dera Ghazi Khan	0·77	1·65	—0·88	—53
Hoshiarpur	4·47	9·07	—4·60	—51
Simla	5·36	11·05	—5·69	—51
Sialkot	4·32	7·94	—3·61	—45
Jullundhur	3·59	6·35	—2·76	—43
Kangra	11·11	19·11	—8·00	—42
Gujarat	5·59	9·69	—4·10	—42
Gurdaspur	6·85	11·66	—4·81	—41

The rainfall of the month was, on the other hand, in local excess in the Karnal, Mianwali, Shahpur and Ferozepore districts.

The following gives data for these districts:—

District.	Rainfall.			
	Average actual, August 1902.	Average normal, August.	Variation of actual from normal, August 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Karnal	7·34	5·70	+1·64	+29
Mianwali	2·36	1·86	+0·50	+26
Shahpur	3·53	3·05	+0·48	+16
Ferozepore	3·79	3·65	+0·14	+ 4

Falls of less than an inch in the month were received at the following stations:—

District.	Station.	Actual rainfall of month
		Inch.
Montgomery	Gugera	0·99
Ferozepore	Muktesar	0·97
Muzaffargarh	Sinanwan	0·90
Amritsar	Raya	0·80
Mooltan	Mailsi	0·76
	Shujabad	0·75
Hissar	Bhiwani	0·73
Montgomery	Pakpattan	0·73

District.	Station.	Actual rainfall of month.
		Inch.
Hissar	Hissar	0·71
	Fatahabad	0·67
Lahore	Kasur	0·63
Patiala State	Lehal	0·62
Rohtak	Jhajjar	0·49
Jhang	Khewra	0·40
Muzaffargarh	Muzaffargah	0·30
Dera Ghazi Khan	Jampur	0·27
Mooltan	Kabirwala	0·19
	Mooltan	0·09
Jhang	Shortkot	*Nil*
Dera Ghazi Khan	Fort Munro	*Nil*
	Rajanpur	*Nil*
Muzaffargarh	Alipur	*Nil*
Mooltan	Lodhrah	*Nil*

The rainfall was very unequally distributed in the south-eastern and submontane districts.

The following gives some of the more remarkable examples :—

District.	Station.	Rainfall.		
		Average actual, August 1902.	Average normal, August.	Variation of actual from normal, August 1902.
		Inches.	Inches.	Inches
Hissar	Tohana	8·67	3·48	+5·19
	Bhiwani	0·73	4·75	—4·02
Gurgaon	Punahana	10·67	7·75	+2·92
	Hattin	1·97	8·25	−6·28
Karnal	Panipat	13·59	6·45	+7·14
	Gulah	2·30	6·67	—4·37
Ludhiana	Jagraon	6·09	5·16	+0·93
	Ludhiana	3·85	6·06	—2·21
Hoshiarpur	Dasuya	10·54	8·68	+1·86
	Una	4·59	10·21	—5·62
Rawalpindi	Attock	5·39	3·98	+1·41
	Fatahjang	1·96	6·45	−4·49

Baluchistan obtained occasional thunder-showers between the 11th and the 13th, the 23rd and the 26th, and the 29th and the 31st. No rain whatever fell in the Quetta or Pishin districts throughout the month. The rainfall of the month was, on the average of the whole province, 21 per cent. below the small normal amount of the month.

Moderate to heavy general rain occurred in Kashmir from the 10th to the 13th and again from the 23rd to the 25th, and numerous local showers during the last three days of the month. The total rainfall of the month was almost certainly considerably below the normal.

A complete break obtained over West Rajputana from the 1st to the 19th and over East Rajputana from the 8th to the 14th. Moderate rain was received over the whole province from the 20th to the 22nd, and again from the 25th to the 29th. Falls exceeding 4 inches in 24 hours were recorded at only three or four stations. The average total rainfall of the month was 4·28 inches or 58 per cent. of the normal of the month in the eastern division. It was, on the other hand, only 6 per cent. in defect in West Rajputana.

The following gives comparative data for the larger States :—

State.	Rainfall.			
	Average actual, August 1902.	Average normal, August.	Variation of actual from normal August 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jaisalmer	1·60	2·12	—0·52	—25
Jodhpur	3·33	3·46	—0·13	— 4
Jaipur	3·19	6·85	—3·66	—53
Alwar	4·31	5·48	—1·17	—21
Bharatpur	3·12	7·27	—4·15	—57
Karauli	3·36	9·09	—5·73	—63
Kotah	4·58	9·90	—5·32	—54
Ajmer-Merwara	4·24	5·63	—1·39	—25
Udaipur	5·23	7·71	—2·48	—32
Sirohi	7·63	10·78	—3·15	—29

Central India received numerous thunder-showers during the the first nineteen days of the month and fairly general and moderate to heavy rain during the remainder of the month.

The following falls exceeding 4 inches in 24 hours were recorded during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Rewah	Sohagpur	23rd August.	7·50
	Ditto	25th ,,	7·37
Nagode	Nagode	25th ,,	4·96
Rewah	Umaria	25th ,,	4·15
Gwalior	Ali Rajpur	27th ,,	6·00
	Sailana	27th ,,	5·43
	Joara	27th ,,	5·20
	Jhabua	27th ,,	4·30

The total rainfall of the month was, on the average of the whole area, considerably below the normal.

The following gives data for the more important states :—

STATE.	RAINFALL.			
	Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Bhopal Agency . .	6·90	12·82	—5·92	—46
Gwalior . . .	6·42	9·32	—2·90	—31
Rewah	10·61	13·49	—2·88	—21
Bundelkhand . . .	5·32	12·88	—7·56	—59
Indore	7·27	7·75	—0·48	— 6
Rutlam	5·02	10·35	—5·33	—51
Nagode . . .	14·71	12·76	+1·95	+15
Maihar . . .	11·84	13·61	—1·77	—13

In the Central Provinces general rain was received between the 8th and the 10th, the 18th and the 21st, and the 25th and the 27th. The rainfall was heaviest during the third period. The daily falls were, as a rule, not heavy, only three out of the 86 rain-recording stations reporting amounts exceeding 5 inches.

Little or no rain fell in Berar during the first seventeen days of the month. Moderate to heavy rain was received from the 18th to the 21st, and light to moderate rain during nearly the whole of the remainder of the month.

The following is a summary of the rainfall of the month in the Central Provinces and Berar :—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal	Average actual, August, 1902.	Average normal, August.
	Inches.	Inches.	Inches.			%
Berer	6·81	6·92	—0·11	— 2	7·6	10·1
Central Provinces, West	9·14	10·59	—1·45	—14	10·1	13·0
Central Provinces, Central	8·20	13·72	—5·52	—40	10·0	15·1
Central Provinces, East	11·83	13·81	—1·98	—14	14·2	15·0

The data show that the rainfall of the month was practically normal in Berar, and more or less in defect in the Central Provinces. The deficiency was, relatively to the normal, slight in the eastern and western divisions and large in the central districts, which obtained only 60 per cent. of their normal fall. The deficiency was most marked in the districts for which data are given below :—

DISTRICT.	RAINFALL.			
	Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Chanda . . .	8·26	12·36	—4·10	— 33
Bhandara . . .	9·98	14·47	—4·49	— 31
Balaghat . . .	10·85	17·10	—6·25	— 37
Seoni	6·67	11·75	—5·08	— 43
Mandla . . .	9·01	14·32	—5·31	— 37
Narsingpur . . .	9·37	13·70	—4·33	— 32
Saugor	4·56	12·09	—7·53	— 62
Damoh	5·85	14·08	—8·23	— 58
Jubbulpore . . .	8·74	14·57	—5·83	— 40

In the Nizam's Dominions fairly general rain fell between the 15th and the 21st, the 26th and 28th, and on the 30th and 31st. The rainfall of the month was irregularly distributed, and was more or less below the normal, except in the districts for which data are given below :—

DISTRICT.	RAINFALL.			
	Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ibrahimpatam . .	8·14	7·12	+1·02	+14
Medak	9·98	8·90	+1·08	+12
Indur	14·04	10·61	+3·43	+32
Yelgandal . . .	8·12	7·40	+0·72	+10
Mahbubnagar . .	9·16	8·26	+0·90	+11
Parbhani . . .	7·15	7·00	+0·15	+ 2

The Hassan, Shimoga and Kadur districts of Mysore obtained rain almost daily, except between the 8th and the 14th, when a general break obtained over the whole province. The falls were generally moderate, in no case exceeding 3½ inches on any single day. In the Bangalore, Kolar, Timkur and Mysore districts local showers occurred in thefirst and last weeks of the month, and a well-marked burst between the 16th and the 24th. Little or no rain fell in the Chitaldroog district, beyond a few showers during the second fortnight of the month. The total fal

of the month varied from 0·21 at Challakere to 17·90 inches at Tirthahalli, and was below the normal in all districts.

General rain occurred in the Konkan on the 1st and 2nd, when the monsoon current was of normal strength. The fall was heavy in the Kolaba and Thana districts during the 24 hours preceding 8 A.M. of the 1st, several stations obtaining amounts ranging from 2 to 6 inches. Matheran, on the summit of the West Ghats, received 11·70 inches. The monsoon current then fell off and was more or less below its normal intensity until the 19th. Showers fell daily during this period but were, with one or two exceptions, very light. The rainfall increased rapidly on the 20th, and was moderately heavy during the remainder of the month.

The following gives the most noteworthy daily falls recorded during this burst:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Ratnagiri	Chiplun	21st August	7·11
	Khed	,, ,,	6·30
	Dapoli	,, ,,	6·22
North Kanara	Kumpta	31st August	10·45
	Honavar	,, ,,	8·03
Kolaba	Khalapur	,, ,,	7·40
Thana	Kurla	,, ,,	7·00
Kolaba	Matheran	,, ,,	6·68
	Karjat	,, ,,	6·50
	Uran	,, ,,	6·22
	Pen	,, ,,	6·15
	Panvel	,, ,,	6·14

The total rainfall of the month averaged 20·23 inches, and was 4·59 inches, or 18 per cent. below the normal.

The deficiency was, it may be noted, as marked on the summit of the West Ghats as at the neighbouring plains.

The following data illustrate this feature:—

Station.	Rainfall.			
	Average actual, August 1902.	Average normal, August.	Variation of actual from normal, August 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Matheran	49·29	56·00	— 6·71	—12
Lanoli	38·20	46·39	— 8·19	—18
Malcolmpeth	48·35	73·00	—24·67	—34

The Deccan obtained occasional local showers between the 1st and the 19th, heaviest and most general in the Sholapur and Bijapur districts, and fairly general rain from the 20th to the end of the month. The rainfall of the month varied irregularly from the normal, but was generally in moderate to considerable defect.

The following gives data for the various districts of the division:—

District.	Rainfall.			
	Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Satara	2·81	6·04	—3·23	—53
Sholapur	2·68	3·95	—1·27	—32
Poona	5·78	7·02	—1·24	—18
Ahmednagar	1·55	2·88	—1·33	—46
Nasik	7·60	9·56	—1·96	—21
Khandesh	4·66	5·97	—1·31	—22

The rainfall was hence in defect in all the districts, the deficiency, relatively to the normal, being most marked in the Ahmednagar and Satara districts, where it averaged 46 and 53 per cent., respectively.

The rainfall of the month was abundant in Gujarat, Kathiawar and Cutch, and occurred mainly during the last ten days of the month in connection with the first and second cyclonic storms of the month. The heaviest falls occurred on the 21st and 22nd, and again on the 27th and 28th when the storms were in the immediate neighbourhood of the province.

The following gives the more noteworthy falls recorded during these two periods:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Surat	Chikhli	21st August	8·67
	Pardi	22nd ,,	9·40
Surat Agency	Dharampur	,, ,,	9·18
Surat	Valod	,, ,,	8·70
Broach	Broach	,, ,,	8·35
Surat	Balsar	,, ,,	8·25
Surat Agency	Bansda	,, ,,	7·94
Broach	Hansot	,, ,,	7·74
Surat	Olpad	,, ,,	6·15
	Jalalpor	,, ,,	6·10

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kaira	Kapodvanj	27th August	10·14
	Anand	28th ,,	8·34
	Dakor	,, ,,	7·39
	Thasra	,, ,,	7·10
Ahmedabad	Modasa	,, ,,	7·02
Surat	Pardi	,, ,,	7·00
Mahikantha	Bayad	,, ,,	7·00
Kaira	Mahudha	,, ,,	6·91
Panchmahals	Halol	,, ,,	6·66
	Kalol	,, ,,	6·51
Surat Agency	Dharampur	,, ,,	6·10

The rainfall of the month was in moderate to large excess over the whole of these two divisions, except in the Palanpur district, where it was 11 per cent. in defect.

The excess was largest and most marked in the districts of Surat, Broach and Kaira.

Data are given below showing the character of the precipitation of the month in the eleven districts comprised in these two divisions:—

District.	Rainfall. Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Surat	18·05	11·37	+6·68	+59
Broach	11·44	7·50	+3·94	+53
Kaira	14·25	9·17	+5·08	+55
Panchmahals	11·68	10·30	+1·38	+13
Ahmedabad	10·23	7·24	+2·99	+41
Baroda	11·15	10·45	+0·70	+ 7
Rewakantha	12·34	11·36	+0·98	+ 9
Mahikantha	11·72	9·21	+2·51	+27
Palanpur	6·05	6·83	−0·78	−11
Kathiawar	8·02	5·70	+2·32	+41
Cutch	4·97	3·13	+1·84	+59

The first storm of the month gave a moderate burst of rain to Sind from the 22nd to the 24th. Some local showers occurred also during the last four days of the month, chiefly in the Thar and Parkar district. The rainfall of the month was in excess in the Kurrachee and Thar and Parkar districts, and in defect in the Larkana and Sukkur districts, as is shown by the following data:—

District.	Rainfall. Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Kurrachee	2·61	1·71	+0·90	+53
Hyderabad	2·39	2·71	−0·32	−12
Larkhana	1·39	1·46	−0·07	− 5
Sukkur	0·51	1·18	−0·67	−57
Upper Sind Frontier	1·18	1·25	−0·07	− 6
Thar and Parkar	5·78	4·71	+1·07	+23

The following table gives comparative data of the rainfall of the month in the seven divisions of the Bombay Presidency:—

Division.	Rainfall. Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.	Number of rainy days. Average actual, August 1902.	Average normal, August.
	Inches.	Inches.	Inches.			
Konkan	20·23	24·82	−4·59	−18	18·0	24·7
Bombay Deccan	3·60	5·93	−2·33	−39	6·0	9·7
Khandesh	4·81	6·32	−1·51	−24	7·4	10·3
Gujarat	14·02	9·79	+4·23	+43	10·7	13·3
Kathiawar and Cutch	8·59	6·75	+1·84	+27	8·2	8·4
Sind	2·44	2·21	+0·23	+10	2·8	2·2
Baluchistan Hills	0·63	0·80	−0·17	−21	1·2	1·3

The Malabar Coast districts obtained rain during the same periods as the Konkan. Daily averages exceeding 2 inches were received in the South Canara district on the 30th (2·79 inches) and the 31st (2·85 inches). The largest amount registered in 24 hours was 5·03 inches at Kasaragod on the 31st. The mean rainfall of the whole division was 15·29 inches, or 25 per cent. below the normal amount for the month.

Rain was more frequent than usual in the eastern coast districts of Madras, and occurred chiefly during the formation and advance of the cyclonic storms of the month in the Bay.

The precipitation was heaviest and most general on the 4th, 6th, 19th, 24th, 25th, 30th and 31st.

The following gives the largest falls exceeding 4 inches in 24 hours recorded in these districts during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Nellore	Gudur	4th August	4·67
Godavari	Rajahmundry	,, ,,	4·31
Nellore	Kanuparti	5th ,,	4·52
Vizagapatam	Parvatipuram	,, ,,	4·30
	Chipurupalle	,, ,,	4·22
Godavari	Mummidivaram	6th ,,	4·03
Tanjore	Kattumavade	11th ,,	4·10

The rainfall of the month was above the normal in all districts, except Madras, South Arcot and Tanjore, the excess being greatest in Trichinopoly (+60 per cent.).

South Madras had occasional local showers, but they were in most cases light, and the rainfall of the month was 9 per cent. below the normal in this division. South-Central Madras had moderate general rain on the 8th, 23rd and 24th, and numerous showers between the 1st and the 3rd, and the 10th and the 22nd. The total fall of the month was in considerable excess in the Salem district and in slight excess in the Coimbatore district.

It is noteworthy that in the neighbouring hill district of the Nilgiris the rainfall of the month was at least 30 per cent. below the normal.

The Central or Deccan districts obtained general rain on the 4th, between the 15th and the 20th, and again on the 31st, and local showers on one or two other occasions. The falls were generally lighter than usual, and the total precipitation of the month was below the normal in all districts except Cuddapah which obtained 18 per cent. more than its normal amount.

The following gives a summary of the rainfall data for the seven divisions of the Presidency:—

Division.	Rainfall.				Number of rainy days.	
	Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.	Average actual, August, 1902.	Average normal, August.
	Inches.	Inches.	Inches.			
Malabar	15·29	20·32	−5·03	−25	16·9	21·4
Madras, South-Central	4·72	3·49	+1·23	+35	6·0	5·6
East Coast, North	10·17	7·51	+2·66	+35	13·8	11·0
Madras, Central	3·54	4·12	−0·58	−14	6·3	6·6
East Coast, Central	5·23	3·47	+1·76	+51	8·2	5·8
Do., South	6·05	4·99	+1·06	+21	8·2	7·2
Madras, South	1·47	1·62	−0·15	−9	2·4	2·8

The following table gives a comparative statement of the rainfall of August for all the collectorates of the Presidency, and shows more fully than the previous table the distribution of the rainfall of the month:—

District.	Rainfall.			
	Average actual, August, 1902.	Average normal, August.	Variation of actual from normal, August, 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	12·36	8·23	+4·13	+50
Vizagapatam	9·63	6·36	+3·27	+51
Godavari	8·49	6·35	+2·14	+34
Kistna	8·82	5·80	+3·02	+52
Nellore	5·23	3·47	+1·76	+51
Chingleput	6·45	5·82	+0·63	+11
Madras	3·26	4·68	−1·42	−30
North Arcot	7·95	5·08	+2·87	+56
South Arcot	5·32	5·62	−0·30	−5
Tanjore	4·32	4·31	+0·01	0
Trichinopoly	6·56	4·11	+2·45	+60
Madura	2·37	2·28	+0·09	+4
Tinnevelly	0·52	0·85	−0·33	−39
Malabar	12·10	16·23	−4·13	−25
South Canara	22·23	27·60	−5·37	−19
Salem	6·35	4·51	+1·84	+41
Coimbatore	2·83	2·12	+0·71	+33
Nilgiris	6·39	9·34	−2·95	−32
Cuddapah	5·10	4·34	+0·76	+18
Anantapur	2·18	3·50	−1·32	−38
Bellary	2·44	3·54	−1·10	−31
Kurnool	3·96	4·95	−0·99	−20

HEM RAJ.

TABLE I.—Abstract of Observations taken at 8 A.M. at 226 Stations in India, Burma, etc., in August, 1902.

Table

Abstract of Observations taken at 8 A.M. at 226

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure 8 A.M. in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.				—·006								85·6	+1·1	76·0	+1·0	80·8	+1·1	9·6					16·8
1	Tenasserim and Bay Islands.	Car Nicobar	25																					
		Port Blair	61	29·783	−·001	29·775	29·828	9th	29·742	7th	·086	80·6	85·1	−0·2	77·2	0	81·2	−0·1	7·9	89·1	6th & 12th	74·3	15th	14·8
		Mergui	96	29·780	−·006	29·808	29·848	19th	29·722	22nd	·126	77·9	85·3	+1·1	74·6	+2·0	80·0	+1·6	10·7	90·0	10th	73·4	7 days	16·6
		Tavoy	26	29·845	−·012	29·802	29·905	31st	29·761	22nd	·144	74·6	83·8	+1·0	74·8	+1·0	79·3	+1·0	9·0	89·2	8th	71·0	5th	18·2
		Moulmein‡	94	29·732	−·006	29·764	29·790	31st	29·591	22nd	·199	77·9	84·8	+1·8	74·9	+0·8	79·8	+1·3	9·9	88·5	3 days	71·3	17th	17·2
	Lower Burma	Rangoon	41	29·758	P	29·736	29·840	20th	29·634	22nd	·206	79·2	85·5	+0·4	76·1	+0·4	80·8	+0·4	9·4	90·1	11th	72·9	2 days	17·2
		Bassein	27	29·773	−·001	29·736	29·841	9th	29·660	23rd	·181	79·1	86·1	+1·6	76·9	+1·2	81·5	+1·4	9·2	90·2	3 days	74·2	26th	16·0
		Diamond Island.	41	29·754	−0·19	29·730	29·823	9th	29·651	23rd	·172	81·0	84·8	+0·5	77·4	+1·8	81·1	+1·2	7·4	87·4	11th & 12th,	74·2	3 days	13·2
5	Arakan	Akyan	20	29·725	−0·07	29·688	29·800	9th	29·593	23rd	·207	80·1	86·9	+2·5	78·0	+0·7	82·5	+1·6	8·9	89·9	3 days	73·2	13th	16·7
3	Central Burma	Toungoo	183	29·617	+·002	29·742	29·688	8th	29·525	22nd	·163	80·5	88·1	+1·4	74·2	−0·8	81·2	+0·3	13·9	93·4	28th	72·1	3rd	21·3
	II.—Burma Inland.				+·013								90·5	+0·8	76·5	+0·4	83·5	+0·6	14·1					21·8
3	Central Burma	Thayetmyo	130	29·653	+·010	29·724	29·715	9th	29·559	22nd	·156	80·9	89·8	+0·9	77·1	+1·0	83·4	+1·0	12·7	93·0	2 days	75·6	3 days	17·4
4	Upper Burma	Minbu	165	29·593	+·011	29·702	29·654	20th	29·516	22nd	·138	80·7	90·6	0	77·7	+0·7	84·2	+0·4	12·5	95·6	6th	76·1	2 days	19·5
		Yamethin	657	29·118	+·010	29·725	29·169	20th	29·050	22nd	·119	79·3	90·6	+0·8	74·8	+0·5	82·7	+0·7	15·8	96·8	22nd	73·2	2 days	23·6
		Mandalay	250	29·513	+·018	29·710	29·590	28th	29·441	6th	·149	83·1	94·6	+1·3	77·9	+0·3	86·3	+0·8	16·7	98·5	2 days.	75·2	3 days	23·3
		Kindat	377	29·364	P	29·695	29·438	31st	29·297	2nd	·141	79·4	88·2	+0·6	75·9	−0·4	82·1	+0·1	12·3	92·8	22nd	71·8	30th	21·0
		Bhamo	381	29·360	+·015	29·696	29·423	31st	29·279	1st	·144	78·8	89·4	+1·3	75·4	0	82·4	+0·7	4·0	97·0	24th	71·1	2 days	25·9
4(a)	Burma Hill Stations.	Maymyo		26·346			26·398	8th	26·251	6th	·147	71·2	78·2		66·8		72·5		11·4	82·0	31st	64·8	26th & 27th.	17·2
		Taunggyi																						
		Lashio		27·003	+·014		27·056	25th	26·905	6th	·151	74·4	85·1	+2·0	69·5	+0·4	77·3	+1·2	15·6	90·5	31st	66·0	28th	24·5
	III.—Assam.				+·011								87·9	−0·5	77·6	+4	82·8	0	10·3					21·6
7	Surma	Silchar	104	29·633	+·015	29·686	29·713	2 days	29·576	1st	·137	81·2	89·7	+0·2	77·3	+0·5	83·5	+0·4	12·4	98·6	24th	73·3	12th	25·3
9	Brahmaputra	Sibsagar	338	29·388	+·005	29·677	29·475	27th	29·310	1st	·165	79·7	87·3	−1·9	78·0	+0·3	82·7	−0·8	9·3	93·2	2 days	72·0	2 days	21·2
		Dhubri	115	29·575	+·012	29·646	29·660	27th	29·475	10th	·185	81·5	86·1	+0·1	78·7	+0·4	82·4	+0·3	7·4	90·2	29th	74·2	12th	16·0
		Gauhati	195	29·514		29·667	29·606	27th	29·447	1st	·159	82·7	90·3		78·3		84·3		12·0	96·0	4th	73·0	11th	23·0
		Tezpur	252	29·456		29·666	29·540	27th	29·386	1st	·154	79·8	87·6		77·8		82·7		9·8	93·1	25th	71·9	11th & 12th.	21·2
		Dibrugarh	353	29·377		29·690	29·449	27th	29·306	1st	·143	78·9	86·5		75·6		81·1		10·9	93·2	3 days	70·5	11th	22·7
	IV.—Bengal and Orissa.				+·018								89·4	+1·5	78·8	+0·6	84·1	+1·1	10·6					18·9
6	East Bengal	Chittagong	87	29·623	—·004	29·658	29·703	21st	29·524	23rd	·179	81·2	87·4	+1·9	76·8	+0·7	82·1	+1·3	10·6	91·5	24th	73·6	30th	17·9
		Noakhali	43	29·662		29·652	29·741	20th & 21st.	29·582	24th	·159	81·5	87·2		77·7		82·5		9·5	93·7	28th	73·9	11th	19·8
		Comilla	36	29·675		29·659	29·756	21st	29·595	24th	·161	80·7	88·9		77·2		83·1		11·7	94·8	24th	73·3	11th	21·5
		Sirajganj	49	29·636		29·635	29·724	21st	29·563	10th	·161	81·7	87·5		79·2		83·4		8·3	91·3	24th	75·2	11th & 25th.	16·1
		Narayanganj	26	29·676	+·023	29·650	29·763	21st	29·594	24th	·169	82·6	88·2	+0·7	79·8	+0·8	84·1	+0·8	8·4	92·1	24th	75·7	11th	16·4
		Barisal‡	13	29·667	+·015	29·625	29·752	21st	29·574	24th	·178	82·5	88·3	+1·5	78·4	+0·2	83·4	+0·9	9·9	91·8	24th	75·1	11th	16·7
		Mymensingh	59	29·633	+·011	29·643	29·723	21st	29·551	10th	·172	82·0	87·5	+0·6	78·7	+0·6	83·1	+0·6	8·8	93·7	24th	75·1	2 days	18·6
10	Deltaic Bengal	Faridpur	46	29·651		29·645	29·742	28th	29·564	24th	·178	83·1	88·4		78·9		83·7		9·5	91·8	24th	75·4	11th	16·4
		Jessore	33	29·650	+·025	29·630	29·733	28th	29·543	24th	·200	83·4	90·2	+1·6	79·6	+0·9	85·0	+1·3	10·6	94·5	24th	75·2	11th	19·3
		Calcutta	21	29·649	+·025	29·616	29·743	21st	29·505	24th	·238	82·9	89·8	+2·7	73·9	+0·6	84·4	+1·7	10·5	94·2	14th	74·6	11th	19·6
		Saugor Island	25	29·635	+·014	29·605	29·720	22nd & 28th	29·443	24th	·277	83·5	89·6	+2·4	80·8	+1·0	85·2	+1·7	8·8	91·9	24th	77·6	12th	14·3
		Krishnagar	47	29·632		29·627	29·720	28th	29·530	24th	·190	82·4	90·9		78·5		84·8		12·4	94·3	24th	75·2	11th	19·1
		Midnapore	14	29·510		29,605	29·598	28th	29·369	25th	·229	83·0	90·7		79·2		85·0		11·5	95·3	15th	75·7	24th	19·6

‡ Observation of 30 days.

I.

Stations in India, Burma, etc., in August, 1902.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 31st August, 1902.	Normal rainfall for period, 1st May to 31st August.	Variation from normal of period, 1st May to 31st August 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				24·36	28·79	−4·43					I.—Burma Coast and Bay Islands.		
																											Car Nicobar	Tenasserim and Bay Islands.	1
					2	15	12	2	S 65° W	12·6	14·1	9·6	+47	89	·933	7·4	27			29·68	14·06	+15·62	77·40	65·48	+11·92	3·00	Port Blair.		
					4	3	1	3	W	1·6	1·4	1·6	−13	94	·885	6·1	27	25·00	+2·00	24·92	29·97	− 5·05	89·37	111·02	−21·65	3·40	Mergui.		
16	4								S 45° W	1·6				93	·889	6·5	27	27·40	−0·40	33·10	47·29	− 14·19	143·87	160·05	−16·18	4·44	Tavoy.		
30					1				S 37° W	2·5	2·8	3·2	−13	90	·861	8·4	26	27·10	−1·10	35·58	40·63	− 5·05	132·20	142·37	−10·17	3·85	Moulmein		
5	1		1	2	5	12	2	2	S 25° W	6·0	5·0	4·7	+6	91	·914	9·1	26	23·90	+2·10	20·15	19·85	+ 0·33	44·48*	69·57	P	2·24	Rangoon .	Lower Burma.	2
3		1	1	5	7	7	5	2	S 23° W	4·3		3·4	+26	94	·939	7·5	25	25·40	−0·40	22·96	23·17	− 0·21	87·81	82·35	+ 5·46	4·43	Bassein.		
4				9	1	13	3	1	S 58° W	10·0	10·0	6·7	+ 49	86	·919	7·4	23	22·10	+0·90	20·27	23·45	− 3·08	71 39†	82·85	−11·46	3·66	Diamond Island.		
2		1		1	3	14	8	2	S 32° E	3·4	3·3	3·2	+ 3	94	·973	8·7	26	26·60	−0·60	21·14	42·00	−20·86	155·47	151·29	+ 4·18	3·16	Akyab. .	Arakan.	5
		3	1	14	6	3		4	S 35° E	5·3	5·2	3·9	+ 33	88	·927	8·3	21	24·30	−3·30	11·41	18·68	− 7·27	45·81	57·00	−11·19	1·93	Toungoo .	Central Burma.	3
2			1	22	3	3														8·89	8·72	+0·17					II.—Burma Inland.		
			1	11	17	1		1	S 16° E	6·1		5·9	+ 3	86	·905	6·1	14	13·20	+0·80	6·56	6·43	+ 0·13	24·74	23·77	+ 0·97	1·78	Thayetmyo .	Central Burma	3
			1	26	2			1	S 44° E	9·1	10·8			85	·898	6·9	11	8·60	+2·40	4·85	5·10	− 0·25	14·08	19·99	− 5·91	0·96	Minbu .	Upper Burma.	4
1				18	9	1			S 29° E	5·9	6·2			86	·859	8·2	11	11·50	−0·50	6·05	6·40	− 0·35	19·32	21·54	− 2·22	1·10	Yamethin.		
3				4	18	9			S 7° W	9·7	9·8			82	·913	6·0	7	7·00	0	4·39	3·99	+ 0·40	16·46	18·38	− 1·92	1·37	Mandalay.		
									N 27° E	0·2	0·2			93	·941	10·0	18	17·30	+0·70	24·01	13·84	+10·17	46·89	45·56	+ 1·33	3·55	Kindat.		
28	2		1						N 34° W	1·7	2·0			92	·912	7·1	13	19·60	−6·60	7·45	16·55	− 9·10	52·60	55·74	− 3·14	1·30	Bhamo.		
14	2	3	2	2		5	1	2	S 45° W	3·1				88	·674	7·7	14	16·20	−2·20	9·06	9·66	− 0·60	32·39	35·22	− 2·83	2·05	Maymyo .	Burma Hill Stations.	1(a)
26				1		3		1																			Taunggyi.		
																				9·79	12·84	− 3·05	35·83	44·38	− 8·55	2·51	Lashio.		
	4	11	2	1	5	7	1		N 22° E	3·0				88	·754	9·1	14			18·29	16·70	+4·70					III.—Assam.		
			2						E	1·4	2·4	3·0	−20	90	·967	8·9	22	21·50	+0·50	19·93	20·26	− 0·33	73·33	77·92	− 4·59	2·51	Silchar .	Surma.	7
29																													
16	1	4	1	1		8			S 24° W	2·7	2·5	2·7	− 7	96	·970	8·9	19	17·70	+1·30	20·47	16·54	+ 3·93	49·49	59·87	−10·38	4·75	Sibsagar .	Brahmaputra.	8
2	1	7	7		6	8			S 48° E	3·7	4·4	3·2	+38	89	·970	7·1	14	14·50	−0·50	23·78	13·29	+10·49	81·88	67·38	+17·50	7·34	Dhubri.		
														86	·960	7·9	10	13·30	−3·30	9·65			30·67			2·29	Gauhati.		
														92	·940	7·9	18	15·50	+2·50	15·79			51·85			3·44	Tezpur.		
11	1	4	8	1	2	2	2		S 88° E	2·1	2·2			92	·907	7·5	16	18·40	−2·40	20·14			77·60			6·86	Dibrugarh.		
	7	2	4	4	1	3	3	7	N 14° W	1·7	1·6									13·73	13·67	+0·06					IV.—Bengal and Orissa.		
		2	3	15	9		1	1	S 36° E	7·0	7·0	6·1	+15	88	·934	7·1	14	17·94	−3·94	15·98	16·86	− 0·88	92·17	68·87	+23·30	8·17	Chittagong .	East Bengal.	6
	2	2	6	12	4	4		1	S 48° E	4·7	4·3			90	·965	6·0	20	22·58	−2·58	32·20	23·93	+ 8·27	113·50	79·38	+34·12	5·78	Noakhali.		
			2	10	13				S 24° E	3·3				91	·948	6·5	17	17·14	−0·14	15·49	15·80	− 0·32	58·01	61·77	− 3·76	3·18	Comilla.		
6																													
19		1	5	4	8	2		1	S 29° E	1·8	1·9			91	·982	8·1	12	13·87	−1·87	9·73	10·86	− 1·13	50·74	41·68	+ 9·06	3·96	Sirajganj.		
2		1	4	8	9	4	2	1	S 17° E	6·7		6·0	+12	90	1·002	8·9	19	17·83	+1·17	10·13	12·01	− 1·88	52·05	46·40	+ 5·65	2·76	Narayanganj.		
2	2	2	1	9	10	3	1		S 22° E	3·8				89	·990	7·4	19	18·74	+0·26	15·11	12·29	+ 2·82	82·31	51·52	+30·79	3·50	Barisal.		
15			3	10	2	1			S 42° E	3·1	2·8			89	·975	7·3	18	18·90	−0·90	19·10	14·34	+ 4·76	82·48	59·97	+22·51	7·96	Mymensingh.		
3	1		3	14	6	3	1		S 30° E	4·3	4·0			87	·993	4·2	14	16·22	−2·22	14·15	12·08	+ 2·07	58·40	45·60	+12·80	2·68	Faridpur .	Deltaic Bengal.	10
15			1	15					S 48° E	1·6		4·1	−61	90	1·030	6·0	15	17·03	−2·03	6·62	10·55	− 3·93	42·21	43·07	− 0·86	1·56	Jessore.		
7	1	2	1	8	5	4	2	1	S 17° E	3·6		5·3	−32	87	·982	8·4	16	18·88	−2·88	14·01	12·33	+ 1·63	44·19	41·68	+ 2·51	2·71	Calcutta.		
	1	4	1	5	11	6	2	1	S 2° E	13·0		12·4	+ 5	89	1·024	7·9	14	17·00	−3·00	9·98	15·68	− 5·70	42·59	46·74	− 4·15	2·23	Saugor Island.		
																											Krishnagar.		
3	1	2	2	10	11	2			S 28° E	3·5	3·8			90	·998	6·5	12	14·26	−2·26	8·25	10·25	− 2·00	29·56	37·04	− 7·48	2·24			
7	3	2	1	3	13				S 14° E	2·9	2·6			88	·992	3·9	14	16·00	−2·00	12·74	12·51	+ 0·23	38·20	41·27	− 3·07	4·15	Midnapore.		

* Since 5th July 1902.

Table

Abstract of Observations taken at 8 A.M. at 226 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal.	Bankura	298	29·341		29·589	29·438	28th	29·203	25th	·235	82·2	91·2		79·1		85·2		12·1	96·6	16th	75·9	11th & 24th.	20·7
		Raniganj	334	29·326		29·607	29·416	28th	29·200	25th	·216	81·4	91·5		78·4		85·0		13·1	96·2	16th	73·9	24th	22·3
		Burdwan	99	29·569	+·022	29·615	29·673	21st	29·451	25th	·222	82·8	93·6	+1·4	79·1	0	84·9	+0·7	11·5	95·9	14th	75·8	2 days	20·1
		Naya Dumka	489	29·174		29·618	29·261	28th	29·076	25th	·185	82·4	90·1		78·1		84·1		12·0	94·0	15th & 16th,	73·9	28th	20·1
		Berhampore	67	29·604	+·018	29·619	29·693	28th	29·518	24th	·175	83·4	90·7	+2·1	79·4	+0·7	85·1	+1·4	11·3	97·3	8th	75·8	2 days	21·5
		Rampur Boalia	70	29·610		29·629	29·702	21st	29·533	10th	·169	83·2	89·1		80·1		84·6		9·0	92·1	16th, 24th & 31st.	75·1	11th	17·0
		Malda	72	29·571		29·594	29·660	21st	29·510	25th	·150	83·2	90·2		79·7		85·0		10·5	93·6	15th	77·0	1st & 4th.	16·6
		Bogra	61	29·611	+·020	29·624	29·698	28th	29·544	10th	·154	82·2	89·6	+1·3	78·6	+0·2	84·1	+0·8	11·0	95·2	1st	75·2	2 days	20·0
12	North Bengal	Dinajpur	123	29·554	+·022	29·631	29·648	21st	29·451	10th	·197	82·0	89·3	+0·5	79·0	+0·4	84·2	+0·5	10·3	93·3	2 days	75·0	12th	18·3
		Rangpur	123	29·573		29·650	29·658	27th	29·472	10th	·186	82·1	88·6		78·4*		83·9*		10·2	93·7	29th	75·8	15th	17·9
		Jalpaiguri	284	29·410	+·022?	29·652	29·504	27th	29·293	10th	·211	80·3	88·2	+0·1	77·4	+0·7	82·8	+0·4	10·8	93·4	31st	72·1	11th	21·3
		Cooch Behar	156	29·542		29·652	29·629	27th	29·436	10th	·193	80·8	88·1		78·4		83·3		9·7	93·9	31st	74·1	11th & 12th.	19·8
17	North Bihar	Purnea	125	29·541	+·016	29·619	29·634	21st	29·437	10th	·197	82·2	89·8	+0·6	79·3	+0·9	84·6	+0·8	10·5	94·2	31st	75·2	12th	19·0
14	Orissa	Balasore	43	29·615	+·022	29·607	29·690	21st	29·434	24th	·256	81·9	90·0	+2·1	78·8	+0·8	84·4	+1·5	11·2	94·4	17th	75·3	4th, 20th	19·1
		False Point	21	29·649	+·015	29·612	29·734	12th, 22nd.	29·423	24th	·311	83·0	88·2	+1·2	78·7	+0·5	83·4	+0·9	9·5	92·5	14th	74·1	4th	18·4
		Cuttack	80	29·583	+·014	29·605	29·682	12th	29·420	24th	·262	82·2	91·8	+2·7	78·6	+0·3	85·2	+1·5	13·2	96·4	3rd	75·2	25th	21·2
		Puri	24	29·649		29·612	29·740	12th	29·504	24th	·236	82·6	88·7		78·3		83·5		10·4	92·2	15th	74·6	11th	17·6
	V.—Gangetic Plain and Chota Nagpur.				+·018								90·8	+2·0	78·6	+0·9	84·7	+1·5	12·2					21·5
15	Chota Nagpur	Hazaribagh	2,007	27·658	+·017	29·601	27·733	28th	27·473	25th	·260	77·6	86·2	+2·5	74·6	+1·4	80·4	+2·0	11·6	91·2	17th	71·8	11th	19·4
		Ranchi	2,128	27·538	+·019	29·598	27·622	28th	27·332	25th	·290	76·9	85·3	+2·0	74·0	+1·4	79·7	+1·7	11·3	90·2	16th & 17th.	71·4	11th	18·8
		Daltonganj	730?	28·915		29·597	28·991	22nd	28·729	25th	·265	80·9	91·7		78·0		84·9		13·7	96·6	16th & 17th.	75·5	5th, 11th & 19th,	21·1
		Purulia		28·830		29·587	28·917	28th	28·657	25th	·260	81·8	90·7		76·3		83·5		14·4	95·6	16th	72·4	24th	23·2
		Chaibassa	760	28·890	+·030	29·595	28·975	28th	28·679	25th	·296	81·3	90·1	+1·5	78·1	+1·1	84·1	+1·3	12·0	95·1	16th	75·5	12th	19·6
16	South Bihar	Gaya	375	29·261	+·012	29·588	29·342	28th	29·105	25th	·237	83·7	93·2	+3·2	79·7	+1·3	86·5	+2·3	13·5	98·2	16th	76·3	31st	21·9
		Dehri	351	29·280		29·582	29·354	22nd & 28th,	29·152	25th	·202	84·2	91·5		80·2		85·9		11·3	96·8	17th	75·0	1st & 31st.	21·8
		Patna	183	29·459	+·009	29·594	29·546	31st	29·366	25th	·183	83·6	90·8	+1·7	80·1	+0·6	85·5	+1·2	10·7	96·0	15th	74·7	19th & 31st.	21·3
		Arrah	190	29·460		29·601	29·543	31st	29·365	11th & 25th	·178	83·6	90·9		79·9		85·5		11·0	96·0	16th	75·6	19th & 31st.	20·
		Buxar	239	29·395		29·588	29·471	31st	29·292	25th	·179	82·8	90·0		79·2		84·6		10·8	95·0	16th & 18th.	74·1	19th	20·9
17	North Bihar	Bhagalpur	160	29·495		29·607	29·579	28th	29·412	25th	·167	83·6	90·9		79·3		85·1		11·6	94·2	15th & 29th.	76·1	3rd	18·1
		Darbhanga	166	29·483	+·010	29·602	29·568	21st	29·386	10th	·182	82·2	89·6	+1·1	80·6	+1·3	85·1	+1·2	9·0	93·3	3 days	76·5	13th	16·8
		Muzaffarpur	178	29·468†		29·599†	29·562	21st	29·367	11th	·195	82·9†	89·5		79·1		84·3		10·4	93·7	15th	73·7	30th	20·0
		Motihari	224	29·430		29·611	29·515	21st	29·296	11th	·219	81·9	90·1		77·5		83·8		12·6	94·4	16th	72·3	18th	22·1
		Chapra	181	29·457		29·590	29·541	31st	29·355	11th	·186	83·8	91·9‡		79·9‡		85·9‡		12·0	97·4	16th	74·6	31st	22·8
18	United Provinces, East.	Benares	267	29·362	+·016	29·582	29·436	22nd	29·250	26th	·186	83·1	91·8	+2·3	77·7	?	84·8	?	14·1	97·8	18th	75·1	31st	22·7
		Allahabad	309	29·336	+·033	29·593	29·413	31st	29·220	26th	·193	83·8	91·8	+2·0	78·8	+0·2	85·3	+1·1	13·0	98·6	19th	74·8	4th	23·8
23	United Provinces (East Submontane.)	Gorakhpur	257	29·387	+·026	29·600	29·459	28th	29·244	11th	·215	82·2	90·9	+1·1	79·3	+0·5	85·1	+0·8	11·6	97·6	16th	75·5	25th	22·1
19	South Oudh	Lucknow	368	29·250	+·008	29·574	29·339	31st	29·117	11th	·222	83·1	92·3	+2·0	78·8	+0·2	85·6	+1·1	13·5	98·3	15th & 18th.	73·3	25th	25·0
2	North Oudh	Bahraich	401	29·231	+·024	29·591	29·311	28th	29·078	11th	·233	82·7	90·7	+0·8	78·8	+0·8	84·8	+0·8	11·9	96·1	16th	75·0	24, 25th & 31st.	21·1
21	United Provinces (Central)	Cawnpore	416	29·207	+·016	29·575	29·293	31st	29·110	11th	·183	84·3	93·4	+3·5	79·5	+1·2	86·5	+2·4	13·9	99·9	18th	75·5	4 days	24·4
		Mainpuri	516	29·090	+·068	29·560	29·189	31st	28·93	1st	·254	83·5	93·7	+2·9	78·8	+0·4	86·3	+1·7	14·9	100·8	18th	75·5	1st & 6th.	25·3

‡ Mean of 30 days.

* Mean of 28 days.

I—*continued.*

in India, Burma, etc., in August, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 31st August 1902.	Normal rainfall for period, 1st May to 31st August.	Variation from normal of period, 1st May to 31st August 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
17	1		4	5	1	1	2		S 51° E	3·2	3·7			88	·969	7·0	12	16·66	− 4·66	5·31	11·66	− 6·35	30·04	38·74	− 8·70	1·32	Bankura	Central Bengal	11
22		1	3	2	2	1			S 53° E	1·4				91	·983	4·9	19	16·00	+ 3·00	8·93	13·01	− 4·08	32·60	40·86	− 8·26	1·48	Raniganj.		
6	2	2	5	3	4	6	3		S 8° E	3·1	3·0	3·6	−17	88	·987	7·9	11	16·48	− 5·48	7·65	11·25	− 3·60	30·68	40·00	− 9·32	1·58	Burdwan.		
7	1	1	3	9	5	4		1	S 30° E	3·0	3·3			88	·969	8·1	14	18·23	− 4·23	9·46	13·41	− 3·95	32·62	41·11	− 8·49	3·05	Naya Dumka.		
5		1	2	8	4	11			S 3° E	3·1	3·0	4·2	−29	88	1·006	7·4	15	16·39	− 1·39	13·57	11·71	+ 1·86	38·03	37·17	+ 0·86	4·25	Berhampore.		
7			2	8	6	6	2		S 4° E	3·1	3·1			88	1·001	3·1	13	14·68	− 1·68	13·91	10·53	+ 3·38	49·39	38·23	+11·16	4·25	Rampur Boalia.		
			8	13	6	3		1	S 39° E	1·8	1·7			89	1·010	5·7	14	14·48	− 0·48	8·48	10·27	− 1·79	31·61	35·08	− 3·47	2·15	Malda.		
13			12	1	5				S 65° E	3·7	4·4			90	·989	7·9	18	15·90	+ 2·10	18·79	11·62	+ 7·17	58·67	45·20	+13·47	7·30	Bogra.		
	2	3	7	9	7	2	1		S 50° E	3·3	3·1			91	·993	8·7	15	15·71	− 0·71	9·72	14·01	− 4·29	52·72	50·01	+ 2·71	2·23	Dinajpur	North Bengal.	12
5		2	7	5	8	3	1		S 37° E	2·8	3·0			91	·998	6·3	18	13·35	+ 4·65	13·80	13·02	+ 0·78	56·46	59·35	− 2·89	2·50	Rangpur.		
1	3	11	6	6	3	1			N 80° E	1·4	1·8			92	·950	5·6	17	18·38	− 1·38	20·42	24·87	− 4·45	90·16	93·15	− 2·99	5·89	Jalpaiguri.		
14			10	3	3	1			S 61° E	2·1	2·2			92	·968	8·4	17	16·72	+ 0·28	28·66	20·42	+ 8·24	111·78	93·41	+ 18·37	6·92	Cooch Behar.		
8		4	3	11	2	2		1	S 56° E	3·1	2·7	2·3	+17	90	·992	5·3	19	16·57	+ 2·43	10·80	14·40	− 3·60	33·47	43·75	− 10·28	3·36	Purnea	North Bihar.	17
11	2	1	1		4	12			S 35° W	3·3				84	·937	5·4	14	16·03	− 2·03	11·68	11·34	+ 0·34	38·65	40·31	− 1·66	4·25	Balasore	Orissa.	14
1	2		1	2	3	11	9	2	S 61° W	9·4	9·0	9·5	− 5	88	·980	8·0	17	16·16	+ 0·84	15·04	13·68	+ 1·36	37·06	39·10	− 2·04	3·25	False Point.		
14	1		1	2	1	6	4	2	S 60° W	2·2		2·6	−15	83	·921	6·2	13	16·19	− 3·19	14·83	13·20	+ 1·63	50·64	39·72	+10·92	4·81	Cuttack.		
14	3	1				11		2	S 72° E	11·3	10·7			88	·985	6·6	18	12·85	+ 5·15	17·28	12·13	+ 5·15	?	32·97	?	2·37	Puri.		
																				7·90	12·09	−4·19					V.—Gangetic Plain and Chota Nagpur.		
1	1	1	1	4	8	2	8	5	S 49° W	8·0	7·1	7·5	− 5	83	·787	9·5	14	17·77	− 3·77	6·71	12·60	− 5·89	26·93	38·45	−11·52	1·42	Hazaribagh.	Chota Nagpur.	15
1	1	2	2	5	4	4	4	7	S 59° W	5·6	6·6			88	·819	7·5	16	17·84	− 1·84	11·59	11·27	+ 0·32	32·97	39·52	− 6·55	2·04	Ranchi.		
22	1	1	2	2		3			S 45° E	3·2	3·8			85	·899	4·6	10	15·74	− 5·74	4·98	12·11	− 7·13	15·27	31·76	−16·49	1·51	Daltonganj.		
22		2	4		1		1	1	N 76° E	1·1	1·3			84	·915	5·5	16	16·52	− 0·52	10·51	12·30	− 1·79	31·70	37·52	− 5·82	1·33	Purulia.		
14		2	2	1	1	5	6		S 51° W	1·5	1·3			86	·924	4·7	13	16·94	− 3·94	6·76	11·77	− 5·01	39·41	36·96	+ 2·45	1·35	Chaibassa.		
5	1	5	2	4	2	4	8		S 45° W	4·0	3·6	2·6	+ 38	84	·966	5·8‡	13	14·26	− 1·26	5·04	13·18	− 8·14	24·34	35·26	−10·92	1·28	Gaya	South Bihar.	6
8		2	6		6	8	1		S 6° E	4·9	4·4			81	·946	6·7	11	14·44	− 3·44	7·70	12·92	− 5·22	30·06	31·91	− 1·85	2·13	Dehri.		
2		6	7	9	1	2	3	1	S 73° E	5·5	6·3	3·2	+97	87	1·002	8·1	12	13·52	− 1·52	10·08	12·58	− 2·50	23·97	35·71	−11·74	2·18	Patna.		
8	2	5	1	2	2	4	4	3	N 72° W	2·5	2·6			87	1·006	3·8	15	12·87	+ 2·13	8·60	10·50	− 1·90	28·06	32·27	− 4·21	1·30	Arrah.		
	1		13	2		1	13	1	S	?	?			86	·963	7·0	10	13·35	− 3·35	9·08	11·29	− 2·21	24·12	29·33	− 5·21	2·40	Buxar.		
9		2	3	12	2	2	1		S 45° E	2·7	2·5			86	·987	6·2	10	13·32	− 3·32	6·82	11·26	− 4·44	25·97	34·55	− 8·58	1·50	Bhagalpur	North Bihar.	17
17		2	11					1	N 81° E	2·1		4·4	−52	91	1·004	7·4	14	14·07	− 0·07	8·09	13·66	− 5·57	31·99	36·68	− 4·69	1·87	Darbhanga.		
9		2	10	7		1	1	1	S 74° E	3·7				89†	1·003†	4·3	11	13·03	− 2·03	9·19	10·64	− 1·45	28·27	32·19	− 3·92	2·72	Muzaffarpur.		
		6	18	1	2	2	1	1	N 87° E	6·1	5·8			88	·958	5·1	15	12·97	+ 2·03	15·48	12·23	+ 3·25	47·48	36·27	+11·21	3·02	Motihari.		
5		1	12	3	1	2	6	1	S 67° E	3·3	2·9			85	·982	7·4	12	12·61	− 0·61	6·32	9·73	− 3·41	16·08	28·77	−12·69	1·32	Chapra.		
11		1	2	4		7	5	1	S 40° W	3·0	3·4	4·2	−19	83	·940	7·6	10	13·40	− 3·46	4·30	12·05	− 7·75	20·00	30·37	−10·37	1·24	Benares	United Provinces East.	18
2		3	4	1	3	5	11	2	S 69° W	6·5	7·3	5·6	+30	82	·942	7·4	10	11·80	− 1·80	9·27	12·03	− 2·76	29·80	30·89	− 1·09	2·40	Allahabad.		
8	4	11	1	2	1	1	1	2	N 35° E	1·7		2·3	−26	91	·990	9·2	13	14·10	− 1·10	5·35	13·24	− 7·89	31·24	37·42	− 6·18	2·06	Gorakhpur	United Provinces (East Submontane)	23
13		4	3	3	1	2	4	1	S 61° E	2·5	2·7	3·0	−10	83	·942	5·6	9	14·20	− 5·20	6·53	11·83	− 5·30	22·66	30·08	− 7·42	1·68	Lucknow	South Oudh.	19
7		1	9	6	1	4	3		S 48° E	6·6	6·2			86	·960	5·9	7	12·70	− 5·70	11·01	16·80	− 5·79	27·82	37·14	− 9·32	3·73	Bahraich	North Oudh.	20
6		2	3	4	1	7	7	1	S 13° W	5·2				79	·918	6·2	6	12·30	− 6·30	3·48	11·96	− 8·48	10·43	27·32	−16·89	1·84	Cawnpore	United Provinces (Central).	21
8			8	1			14		S 32° W	1·8	1·8			77	·876	6·8	6	10·90	− 4·90	6·97	10·13	− 3·16	15·95	24·04	− 8·09	3·95	Mainpuri.		

† Mean of 24 days.

‖ Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 226 Stations

Number of District	Meteorological Province or District.	Station.	Elevation of bar-istern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas				+·008								94·7	+2·1	78 9	+1·4	86·8	+1·8	15·8					30·2
24	United Provinces, (West Submontane).	Bareilly .	568	29·043	+·007	29·573	29·151	31st	28·877	11th	·274	82·2	91·1	+1·2	78·6	+0·6	84·9	+0·9	12·5	96·9	24th	74·6	24th & 30th	22·3
		Dehra Dun .	2,233	27·427	+·003	29·594	27·528	28th	27·244	11th	·284	75·8	84·3	+0·3	72·4	−0·7	78·4	−0·2	11·9	89·5	8th & 18th	68·5	3rd, 20th & 29th	21·0
		Roorkee .	899	28·719	+·008	29·581	28·828	28th	28·538	11th	·290	80·7	90·2	−0·5?	76·6	−0·4	83·4	−0·5?	13·6	97·2	18th	71·6	20th	25·6
22	United Provinces, West.	Meerut . .	738	28·854	−·011	29·553	28·952	31st	28·689	11th	·263	82·1	91·9	+1·0	78·7	+0·4	85·3	+0·7	13·2	98·6	18th	73·3	28th.	25·3
26	South-East Punjab.	Delhi . .	718	28·884	0	29·559	28·983	31st	28·733	11th	·250	84·0	93·3	+1·5	81·2	+1·9	87·3	+1·7	12·1	102·7	18th,	74·1	2nd	28·6
28	Central Punjab	Lahore . .	702	28·890	+·017	29·553	29·017	31st	28·672	11th	·345	86·3	99·8	+1·6	80·9	+3·1	90·4	+2·4	18·9	108·4	20th.	69·9	12th	38 5
27	South Punjab .	Sirsa . .	662	28·936	+·014	29·552	29·030	31st	28·774	11th	·256	87·9	100·8	+2·4	83·1	+2·9	92·0	+2·7	17·7	108·3	18th	74·1	2nd & 29th	34·2
		Patiala . .	818	28 783		29·558	28·889	31st	28·601	11th	·288	85·4	96·1		79·3		87·7		16·8	105·0	19th	74·1	2nd & 29th	30·9
29	Punjab (Submontane).	Ludhiana .	812	28·787	+ 010	29·558	28·896	31st	28·588	11th	308	85·0	96·5	+1·5	81·4	+2·4	89·0	+2·0	15·1	105·0	18th & 19th	75·1	2nd & 30th	29·9
		Sialkot . .	830	28 765	+·012	25·655	28·902	31st	28·558	11th	·344	85·4	99·5	+4·8	81·0	+3·3	90·3	+4·1	18·5	107·7	9th & 19th	73·1	12th & 13th	34·6
		Umballa .	892	28·717	+·023?	29·567	28·825	28th	28·531	11th	·294	83·1	94·5	+1·7	77·0	−1·1	85·8	+0·3	17·5	101·5	18th	72·0	14th & 25th	29·5
31	North Punjab .	Rawalpindi .	1,674	27·953	+·019	29·575	28·088	31st	27·742	11th	·346	84·1	98·9	+5·0	76·5	+1·3	87·7	+3·2	22·4	109·0	9th	67·1	12th	41·9
	VII.—N.-W. Frontier Province, Indus Valley and North-West Rajputana.				+0·23								100·6	+2·6	81·0	+1·0	90·8	+1·8	19·7					34·5
31	North Punjab .	Peshawar .	1,110	28·504	+·025	29·577	28·671	31st	28·283	11th	·388	87·1	103·5	+4·3	77·8	0	90·7	+2·2	25·7	111·0	9th	72·7	31st	38·3
32	West Punjab .	Khushab .	612	28 984	+·041	29·558	29·139	31st	28·752	11th	·387	87·1	101·0	+0·8	81·1	+0·3	91·1	+0·6	19·9	109·4	6th	69·9	12th	39·5
		Montgomery .	558	29·030	+·029	29·545	29·140	31st	28·817	11th	·323	88·5	102·5	+0·5	81·4	−0·2	92·0	+0·2	21·1	109·0	2.st	67·5	1st	41·5
		D. I. Khan .	590	29 003	+·025	29·536	29·160	31st	28·757	11th	·403	86·7	102·3	+1·2	81·1	+0·4	91·9	+0·8	20·9	109·2	1st & 8th	71·1	1st	38·1
		Mooltan .	420	29·152	+·020	29·532	29·271	31st	28·924	11th	·347	87·7	104·4	+3·7	83·3	+1·2	93·9	+2·5	21·1	112·4	22nd	75·0	14th	37·4
47	Sind . . .	Jacobabad .	186	29·374	+·008	29·519	29·479	31st	29·159	11th	·320	87·3	107·4	+3·6	82·9	+1·5	95·2	+2·6	24·5	116·6	1st	79·1	26th	37·5
		Hyderabad .	96	29·504	+·011	29·552	29·616	13th	29·347	11th	·269	83·9	97·3	+1·8	79 5	+0·8	88·4	+1·3	17·8	108·7	22nd	74·5	23rd	34·2
		Kurrachee .	30	29 630	+·022	29·611	29·725	13th	29·504	11th	·221	82·9	90·8	+2·6	79·9	+1·2	85·4	+1·9	10·9	93·4	4th	74·2	11th	19·2
51	West Rajputana	Bikaner .	771	28·843	+·021	29·570	28·929	13th	28·683	11th	·246	86·9	101·0	+3·9	83·7	+3·1	92·4	+3·5	17·3	107·6	21st	78·0	29th	29·6
		Pachpadra .	380	29·267	+·025	29·601	29·387	13th	29·169	29th	·218	83·7	98·2	+3·4	78·5	+1·2	88·1	+2·3	19·7	105·5	1st	73·0	29th	32·5
		Jodhpur .	782	28·869		29·628	28·944	14th	28·766	1st	·178	82·8	97·8		79·9		88·9		17·9	107·2	21st	75·3	29th	31·9
	VIII.—East Rajputana, Central India and Gujarat.				+·014								91·6	+3·3	77·9	+1·8	84·8	+2·6	13·6					25·6
50	East Rajputana	Jaipur . .	1,431	28·236	+·021	29·616	28·321	13th	28·096	1st	·225	82·3	94·6	+3·0	77·7	+1·6	86·2	+2·3	16·9	106·2	20th	73·1	25th	33·1
		Bharatpur .	585	29·025		29·565	29·115	31st	28·813	1st	·302	83·9	96·2		79·7		88·0		16·5	104·0	18th	74·2	26th	29·8
		Kotah . .	819	28·803		29·621	28·908	13th	28·676	1st	·232	83·9	93·1		80·4		86·8		12·7	101·5	19th.	74·1	30th	27·4
		Sambhar .	1,254	28·402	+·030	29·608	28·499	13th	28·281	1st	·218	82·8	95·4	+4·1	79·3	+2·1	87·4	+3·1	16·1	104·5	20th	74·4	29th & 31st.	30·1
		Ajmer . .	1,611	28·057	+·012	29·618	28·150	13th	27·944	1st	·206	81·4	92·5	+4·3	79·5	+4·2	86·0	+4·3	13·0	100·9	19th	73·6	29th	27·3
		Udaipur .	1,925	27·773		29·640	27·889	13th	27·676	22nd	·213	79·3	89·6		75·6		82·6		14·0	97·5	20th & 21st	70·8	29th	26·7
		Deesa . .	466	29·222	+·011	29·642	29·325	13th	29·109	22nd	·216	81·6	95·6	+6·7	78·5	+2·9	87·1	+1·8	17·1	105·1	21st	73·0	28th	32·1
46	Kathiawar and Cutch.	Bhuj . .	395	29·289	+·019	29·636	29·381	13th	29·191	11th	·190	81·9	91·3	+2·6	77·2	+1·0	84·3	+1·8	14·1	97·3	21st	70·9	28th	26·4
		Jamnagar .	61	29·656		29·663	29·746	14th.	29·564	1st	·182	82·8	91·2		77·7		84·4		13·5	97·1	3rd	74·2	29th	22·9
		Rajkot . .	429	29·289	+ 015	29 670	29·378	13th& 14th	29·186	22nd	·192	80·7	92·0	+3·1	75·3	+0·8	83·7	+2·0	16·7	99·4	18th	71·8	29th	27·6
		Veraval .	8	29·724	0	29·684	29·816	13th	29·638	22nd	·178	81·5	84·5	+1·8	79·3	+1·6	81·9	+1·7	5·2	87·1	20th	75·8	29th,	11·3
		Dwarka .	37	29·679		29·661	29·766	13th	29·586	1st	·180	81·6	85·8		79·1		82·5		6·7	88·4	4th,17th, 20th.	73·2	29th	15·2
		Bhavnagar .	55	29·689	F	29·691	29·780	13th	29·591	21st& 22nd	·199	82·5	94·2	+1·4	77·4	+0·3	85·8	+0·9	16·8	101·6	3rd	73·3	21st	28·3
	Central India	Para. Nowgong .	757	28·885	+·015	29·595	28·966	13th	28·773	1st	·193	81·5	90·0	+2·1	76·6	+1·9	84·3	+2·0	11·4	97·5	18th & 19th.	74·0	25th	23·5
		Indore .	1,823	27·907	+ 030	29·680	28·015	13th	27·772	21st	·243	76·0	85·9	+3·0	72·3	+1·0	79·1	+2·0	13·6	92·8	16th	69·1	20th	23.7

I—*continued.*

in India, Burma, etc., in August, 1902—continued.

Wind Direction. Number of winds from									Wind resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.						Total rainfall from 1st to 31st May, 1902.	Normal rainfall for period, 1st May to 31st August.	Variation from normal of period, 1st May to 31st August.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.							
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				7·63	10·72	−2·51					VI.—Upper Sub-Himalayas.		
15			8	2		3	1	2	S 67° E	2·1	2·0	3·6	− 44	88	·960	5·1	7	12·18	−5·18	11·18	14·43	−3·25	29·03	36 62	− 7·59	2·80	Bareilly	United Provinces (West Submontane).	24
24		2				2		3	N 45° W	1·1		1·1	0	87	·785	6·7	19	21·30	−2·30	21·33	30·68	−9·35	44·87	71·21	−26·34	3·97	Dehra Dun.		
17		1		8	2	1		2	S 34° E	2·1		2·5	− 16	85	·863	4·3	10	12·10	−2·10	16·35	13·09	+3·26	36·77	31·83	+ 4·94	5·84	Roorkee.		
8		2	4	8		5	1	3	S 39° E	1·5	1·5	2·1	− 29	80	·878	5·6	8	9·40	−1·40	11·97	9·30	−2·67	29·45	22·74	+ 6·71	5·72	Meerut	United Provinces, West.	22
7		1	1	7		2	7	6	S 77° W	5·3	4·8	4·1	+ 17	73	·832	5·4	6	9·30	−3·30	6·54	8·52	−1·98	23·50	21·13	+ 2·37	2·50	Delhi	South-East Punjab.	26
7	2	2	4	6	3	1	4	2	S 48° E	2·8		2·9	− 3	71	·891	2·5	5	5·20	−0·20	3·86	5·30	−1·44	8·10	14·17	− 6·07	1·50	Lahore	Central Punjab.	28
1	4	4	4	6	2	5	3	2	S 61° E	8·5	7·7	4·6	+ 67	64	·825	0·5	4	4·80	−0·80	2·18	3·87	−1·69	6·33	10·51	− 4·18	1·17	Sirsa	South Punjab.	27
3	2	1	7	9	2	1	2	4	S 66° E	6·0	6·1			73	·887	3·6	5			1·23			8·80			0·41	Patiala.		
7		2	1	13		3		5	S 43° E	2·9	2·6	1·4	+ 86	71	·852	3·2	4	7·30	−3·30	3·97	6·35	−2·38	13·93	19·25	− 5·32	2·12	Ludhiana	Punjab (Submontane).	29
8	3	7	10	2			1		N 67° E	1·8		2·3	− 22	69	·839	2·7	4	8·40	−4·40	5·13	9·69	−4·56	17·73	21·81	−4·08	2·95	Sialkot.		
17			3	9			1	1	S 53° E	1·1				83	·940	5·2	7	7·90	−0·90	2·34	8·03	−5·69	18·75	22·70	−3·95	0·60	Umballa.		
26	1	1			2			1	N	2·1	1·9	1·6	+ 19	62	·726	2·9	7	8·00	−1·00	5·47	8·70	−3·23	17·14	20·71	−3·57	1·55	Rawalpindi.	North Punjab.	31
																				2·35	2 57	−0·22					VII.—N.-W. Frontier Province, Indus Valley and North-West Rajputana.		
13	5	2	1				4	6	N 29° W	2·5	2·7	4·0	−33	57	·726	1·0	0	2·30	−2·30	0·05	2·36	− 2·31	1·45	5·07	− 3·62	0·05	Peshawar	North Punjab.	31
1	1	12	8	2	5	2			N 83° E	7·4	6·3			62	·791	1·5	5	2·80	+2·20	5·80	2·73	+ 3·07	10·23	9·75	+ 0·48	2·25	Khushab	West Punjab.	32
	1	7	4	4	3	10	2		S 23° E	10·7	9·2			56	·729	1·6	2	3·20	−1·20	1·49	2·99	− 1·50	4·00	6·88	− 2·88	1·04	Montgomery.		
15	2	6	2	6					N 79° E	2·3	2·4	2·1	+ 14	72	·902	0·9	2	2·40	−0·40	1·10	1·63	− 0·53	4·86	5·00	− 0·14	0·83	D. I. Khan		
7	1	7		3	4	9			S 7° E	2·9	3·6	3·2	+ 13	66	·857	0·7	1	2·30	−1·30	0·23	2·02	− 1·79	4·56	5·35	− 0·79	0·21	Mooltan.		
18		1		10	2				S 43° E	2·9	3·0	4·0	− 25	76	·999	2·8	3	1·90	+1·10	1·18	1·13	+ 0·05	1·51	2·60	− 1·09	0·56	Jacobabad	Sind.	17
2	1			1	1	24	2		S 46° W	14·5	15·1	13·8	+ 9	67	·761	2·8	2	2·40	−0·40	5·20	2·40	+ 2·80	10·24	5·66	+ 4·58	3·80	Hyderabad.		
						11	18	2	S 23° W	13·5	15·9	17·2	− 8	80	·899	6·1	2	1·90	+0·10	2·60	1·77	+ 0·83	7·84	6·14	+ 1·70	1·32	Kurrachee.		
		1	5	2	3	10	8	2	S 45° W	10·2		6·2	+ 65	63	·808	2·4	3	4·90	−1·90	1·42	3·12	− 1·70	4·26	9·09	− 4·83	0·86	Bikaner	West Rajputana	51
		1			14	14	2		S 26° W	8·7	7·7	9·7	− 21	77	·885	1·6	5	4·90	+0·10	3·57	3·56	+ 0·01	4·10	10·31	− 6·21	2·42	Pachpadra.		
1	1	2		2	3	13	9		S 54° W	8·9	8·0			68	·761	5·9	4	5·90	−1·90	3·16	4·56	− 1·40	5·63	10·51	− 4·88	1·80	Jodhpur.		
																				6·06	7·32	−0·95					VIII.—East Rajputana, Central India and Gujarat.		
		5	2	1	2	7	13	1	S 75° W	4·5		5·5	− 18	72	·789	6·2	5	11·60	−6·60	3·53	8·89	− 5·36	19·48	20·70	−10·22	1·86	Jaipur	East Rajputana.	50
6	2	3	3	4	1	4	8		S 45° W	4·5	4·1			78	·907	4·2	8			7·19			24·42			2·68	Bharatpur.		
	2		1		1	18	6	3	S 64° W	7·2	8·5			68	·784	4·2	7	10·60	−3·60	5·07	8·92	− 3·85	16·63	23·45	− 6·82	1·63	Kotah.		
2	2		3	1	2	2	10	9	N 73° W	7·9		8·1	− 2	68	·761	5·0	4	9·40	−5·40	0·93	6·77	− 5·84	10·42	16·34	− 5·92	0·30	Sambhar.		
		1	1	4		5	16	4	S 81° W	9·0		5·5	+ 64	78	·830	6·0	8	8·90	−0·90	4·76	7·25	− 2·49	11·47	17·76	− 6·29	1·77	Ajmer.		
7			1	1		11	9	2	S 67° W	5·4	5·5			77	·772	5·5	7	8·70	−1·70	4·03			8·34			1·35	Udaipur.		
					4	14	9	4	S 63° W	14·3		12·0	+ 19	76	·806	6·6	8	10·09	−2·09	4·97	6·67	− 1·70	6·59	19·35	−12 76	1·55	Deesa.		
						13	13	5	S 77° W	17·5	17·5	14·9	+ 17	80	·869	7·1	6	3·70	+2·30	4·53	2·44	+ 2·09	6·48	12·03	− 5·55	1·91	Bhuj	Kathiawar and Cutch.	46
					7	16	8		S 47° W	17·5	20·8			79	·879	5·2	8			4·81			6·23			1·52	Jamnagar.		
					1	12	17	1	S 72° W	16·1	15·9	11·6	+ 37	82	·855	7·5	9	6·60	+2·40	10·11	4·52	+ 5·59	11·09	23·17	−12·08	3·53	Rajkot.		
1					1	10	14	5	S 79° W	15·6	15·6	13·9	+ 12	87	·924	6·0	7	8·10	−1·10	4·76	2·30	+ 2·46	12·35	14·79	− 2·44	1·80	Veraval.		
						17	12	2	S 67° W	18·7				83	·897	7·6	7			3·31			10·21			1·56	Dwarka.		
	1					16	11	3	S 72° W	14·4	13·5			73	·806	6·9	8	8·80	−0·80	8·81	4·42	+ 4·39	13·22	14·27	− 1·05	3·29	Bhavnagar Para.		
3	1	2	2	2	1	5	14	1	S 78° W	2·5	2·5	3·4	− 26	81	·873	7·5	6	14·10	−8·10	3·96	15·51	− 9·55	34·73	36·19	− 1·46	1·36	Nowgong	Central India	49
		1			2	4	10	14	N 75° W	9·1	7·4	6·1	+ 21	85	·767	8·4	8	10·60	−2·60	7·27	7·56	− 0·29	19·05	23·50	− 4·45	2·04	Indore.		

Table

Abstract of Observations taken at 8 A.M. at 226 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
49	Central India	Neemuch	1,630	28·062	+·012	29·647	28·164	13th	27·934	21st	·230	77·5	88·4	+3·4	73·6	+1·1	81·0	+2·3	14·8	96·0	17th, 18th & 20th.	70·5	12th	25·5
45	Gujarat	Surat	39	29·715	+·016	29·696	29·817	13th	29·603	21st	·214	82·5	89·7	+2·7	78·1	+1·6	83·9	+2·2	11·6	95·2	17th	74·0	21st	21·2
		Ahmedabad	163	29·551	+·008	29·662	29·648	13th	29·417	22nd	·231	82·7	94·4	+4·3	78·7	+1·6	86·6	+3·0	15·7	101·3	4th & 19th.	73·6	30th	27·7
22	United Provinces, West.	Agra	555	29·054	−·007	29·563	29·146	31st	28·804	1st	·342	84·4	94·6	+3·5	81·0	+2·2	87·8	+2·9	13·6	102·0	19th	75·9	3rd	26·1
21	United Provinces, Central.	Jhansi	858	28·787	+·016	29·596	28·862	13th	28·645	1st	·217	82·7	92·2	+3·3	79·8	+2·7	86·0	+3.0	12·4	100·8	19th	75·1	1st	25·7
	IX.—Deccan				+·015								89·4	+3·7	73·4	+1·1	81·4	+2·4	16·0					26·1
38	Bombay (Deccan)	Belgaum	2,539	27·291	+·002	29·767	27·361	13th	27·198	21st	·163	71·2	79·7	+3·6	66·3	+0·1	73·0	+1·9	13·4	85·3	17th	64·8	4 days	20·5
		Sholapur	1,590	28·202	+·002	29·740	28·280	13th	28·093	21st	·187	77·7	93·7	+4·9	72·8	+2·2	83·3	+3·6	20·9	99·2	7th	69·0	22nd	30·2
		Poona	1,840	27·954	+·005	29·746	28·037	13th	27·823	21st	·214	74·1	84·7	+2·8	69·6	+0·1	77·2	+1·5	15·1	91·0	18th	67·9	4 days	23·1
		Bijapur	1,946	27·871	+·011	29·759	27·940	13th	27·766	21st	·174	75·6	90·3	+4·2	70·6	+0·7	80·5	+2·5	19·7	96·4	7th	67·8	12th & 22nd.	28·6
40	Khandesh	Malegaon	1,430	28·314	+·002	29·693	28·413	13th	28·187	21st	·226	79·1	90·7	+4·1	72·5	+1·0	81·6	+2·6	18·2	96·4	6th & 18th.	68·0	10th	28·4
		Ahmednagar	2,152	27·655	+·016	29·745	27·740	13th	27·526	21st	·214	75·8	88·4	+3·6	69·2	+0·2	78·8	+1·9	19·2	93·4	5th	65·4	2nd	28·0
41	Berar	Akola	930	28·802	+·013	29·682	28·912	13th	28·653	21st	·259	79·6	90·7	+3·5	74·7	+1·4	82·7	+2·5	16·0	97·8	16th	69·8	20th	28·0
		Amraoti	1,215	28·515	+·026	29·683	28·609	13th	28·383	21st	·226	78·6	89·9	+3·8	74·5	+1·9	82·2	+2·9	15·4	98·2	16th	69·5	20th	28·7
42	Central Provinces (West).	Khandwa	1,044	28·676	+·017	29·678	28·782	13th	28·526	21st	·256	79·0	89·3	+3·8	75·1	+1·0	82·2	+2·4	14·2	97·2	17th	71·1	20th	26·1
		Hoshangabad	1,006	28·701	+·023	29·667	28·804	13th	28·563	27th	·241	79·2	90·2	+5·2?	75·6	+1·8	82·9	+3·5?	14·6	96·3	17th	73·2	20th	23·1
		Nagpur	1,025	28·674	+·018?	29·653	28·769	13th	28·552	20th	·217	79·7	91·1	+4·1	76·0	+1·4	83·6	+2·8	15·1	99·1	16th	72·6	21st	26·5
43	Central Provinces (Central).	Chanda	634	29·100	+·028	29·677	29·181	12th	28·993	20th	·188	81·5	92·5	+4·9	75·5	+0·5	84·0	+2·7	17·0	98·2	4th, 7th & 12th.	71·0	20th	27·2
		Seoni	2,033	27·676	+·024	29·640	27·773	13th	27·528	26th	·245	77·5	86·1	+3·0	72·2	+0·6	79·2	+1·8	13·9	93·8	19th	66·5	19th	27·3
		Jubbulpore	1,327	28·340	+·018	29·620	28·433	13th	28·158	26th	·275	78·8	88·1	+3·4	75·0	+1·1	81·6	+2·3	13·1	94·0	17th & 19th.	72·1	26th	21·9
		Saugor	1,807	27·886	+·029	29·639	27·975	13th	27·751	27th	·224	77·4	86·9	+3·3	74·0	+1·2	80·5	+2·3	12·9	95·4	19th	71·1	1st	24·3
49	Central India	Sutna	1,040	28·616	+·034	29·614	28·694	13th	28·446	26th	·248	80·5	88·5	+2·6	78·1	+2·2	83·3	+2·4	10·4	95·5	18th & 19th.	75·1	5th & 25th.	20·4
4	Central Provinces (East).	Raipur	970	28·704	+·015	29·623	28·796	13th	28·564	25th	·232	80·1	88·6	+2·7	73·1	−1·8	80·9	+0·5	15·5	94·4	3rd & 18th.	69·4	25th	25·0
		Sambalpur	486	29·188	+·018	29·622	29·272	13th	28·959	25th	·313	81·4	88·9	+1·7	78·0*	+0·8*	83·8*	+1·3	10·9	93·1	16th	75·2	4th	17·9
39	Hyderabad (North).	Aurangabad	1,905	27·874		29·721	27·970	13th	27·737	21st	·233	75·4	89·2		69·5		79·3		19·7	95·4	17th	66·2	23rd	29·2
		Indur	...	28·482			28·563	13th	28·358	20th	·205	78·9	89·6		74·7		82·2		14·9	95·8	10th	70·2	20th	25·6
		Bidar	2,165	27·617		29·713	27·702	13th	27·508	20th	·194	76·1	88·3		70·6		79·5		17·7	96·1	8th	66·4	22nd	29·7
53	Hyderabad (South).	Gulbarga	1,503	28·290	+·004	29·742	28·360	12th	28·187	21st	·173	77·2	91·7	+3·4?	72·3	+1·2	82·0	+2·3?	19·4	98·4	5th	67·8	22nd	30·6
		Raichur	1,326	28·471	+·001	29·748	28·542	12th	28·380	20th	·162	78·6	92·6	+4·1	74·0	+1·5	83·3	+2·8	18·6	98·1	1st	71·1	4 days	27·0
		Hyderabad (Deccan).	1,690	28·078	−·001?	29·710	28·172	12th	27·967	20th	·205	77·6	89·7	+3·6	74·1	+3·0	81·9	+3·3	15·6	95·9	10th	70·2	20th & 22nd.	25·7
		Secunderabad	1,787	27·981	?	29·710	28·071	12th	27·864	20th	·207	76·9	91·8	+5·7	73·1	+2·0	82·5	+3·9	18·7	98·7	8th	69·5	4th & 20th.	29·2
		Hanumkonda	871	28·855		29·670	28·944	10th	28·755	20th	·189	80·6	91·7		76·4		84·1		15·3	98·4	8th	72·3	20th & 31st.	26·1
	X.—West Coast				−·009								84·5	+1·6	76·4	+1·5	80·5	+1·6	8·2					13·3
37	Konkan	Bombay	37	29·760	+·003	29·736	29·854	13th	29·631	21st	·223	81·3	85·9	+1·9	78·4	+1·4	82·2	+1·7	7·5	88·0	4 days	74·5	21st	13·5
		Ratnagiri	110	29·722	+·013	29·771	29·808	13th	29·627	21st	·181	80·5	85·6	+1·9	77·2	+2·0	81·4	+2·0	8·4	87·4	18th & 19th.	73·9	23rd	13·5
		Mormugao	50	29·787	−·009	29·782	29·862	13th	29·700	21st	·162	80·6	85·2	+1·8	76·8	+1·0	81·0	+1·4	8·4	88·0	13th	73·4	20th & 21st.	14·6
		Goa	199			Barometer out of order.						80·1	83·0	+1·1	77·9	+2·1	80·5	+1·6	5·1	85·0	16th	74·0	27th	11·0
		Karwar	44	29·810	−·009	29·786	29·871	13th	29·718	21st	·153	78·8	84·1	+1·6	75·8	+1·2	80·0	+1·4	8·3	86·2	16th	73·5	20th	12·7
33	Malabar	Cochin	10	29·692	−·015	29·830	29·951	31st	29·833	20th	·118	79·1	86·2	+2·5	75·5	+1·2	80·9	+1·9	10·7	89·3	30th	73·7	24th 25th & 31st.	15·6
		Calicut	27	29·857	−·023	29·813	29·923	28th	29·801	20th	·122	78·2	84·8	+2·0	74·8	+0·7	79·8	+1·4	10·0	86·8	16th & 29th.	72·0	29th	14·8
		Mangalore	65	29·811	−·022	29·808	29·868	26th	29·739	20th	·129	78·0	83·9	+1·1	74·9	+0·9	79·4	+1·0	9·0	86·7	14th	72·4	26th	14·3
		Trivandrum	168	29·694	−·012	29·824	29·759	28th	29·643	7th	·116	78·3	82·8	+0·5	76·2	+3·2	79·6	+1·9	6·6	84·5	4 days	74·5	15th, 16th 21st	10·0

* Mean of 22 days.

I—*continued.*

in India, Burma, etc., in August, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Hygrometry, 8 A.M. Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 31st August 1902.	Normal rainfall for period, 1st May to 31st August 1902.	Variation from normal of period, 1st May to 31st August 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
		1		1	1	10	17	1	S 73° W	13·3	12·0	11·9	+ 1	81	·771	6·5	9	10·50	−1·50	11·63	9·22	+2·46	22·37	23·58	− 1·21	3·10	Neemuch.	Central India	42
	1				1	10	15	4	S 80° W	8·5	8·0	13·6	− 41	79	·830	6·0	10	12·30	−2·30	12·15	7·29	+4·86	39·07	34·72	+ 4·35	5·25	Surat	Gujarat	45
					3	22	1	5	S 53° W	4·5	7·4			76	·834	6·5	10	10·90	−0·90	10·65	7·66	+2·99	14·85	27·02	−12·17	3·11	Ahmedabad.		
1		3	1	7		16	1	2	S 25° W	5·4	6·2	4·4	+ 41	74	·870	4·0	6	10·00	−4·00	5·25	8·14	−2·89	18·14	22·20	− 4·06	1·97	Agra	United Provinces, West.	22
	2	3		5	1	14	5	1	S 46° W	5·5	6·1	3·9	+ 56	80	·888	2·4	9	12·70	−3·70	3·52	11·61	−8·09	25·57	30·20	− 4·63	0·93	Jhansi	United Provinces, Central.	21
																				6·46	8·86	−2·33					IX.—Deccan.		
						13	15	3	S 75° W	18·8		20·7	− 9	89	·882	7·8	7	17·40	−10·40	3·31	8·67	− 5·33	29·37	35·06	− 5·69	0·81	Belgaum	Bombay (Deccan).	38
						9	9	13	N 83° W	14·4	17·4	11·0	+ 58	73	·687	6·4	5	8·00	− 3·00	2·12	6·09	− 3·97	8·00	15·61	− 7·61	0·55	Sholapur.		
						8	19	4	S 81° W	13·9	15·7	14·0	+ 12	83	·698	6·7	6	8·60	− 2·60	5·89	3·31	+ 0·58	14·97	16·42	− 1·45	1·88	Poona.		
						6	20	5	S 89° W					78	·684	7·9	5	5·60	− 0·60	1·07	2·47	− 1·40	7·19	9·83	− 2·64	0·21	Bijapur.		
		1				8	15	7	W	10·0	11·5	10·0	+ 15	70	·702	6·1	5	5·80	− 0·80	3·05	3·55	− 0·50	11·54	13·72	− 2·18	1·07	Malegaon	Khandesh	10
						9	7	14	N 81° W	11·0	13·4			76	·677	5·6	4	5·20	− 1·20	2·15	2·29	− 0·14	8·45	11·15	− 2·70	0·81	Ahmednagar.		
1						7	13	11	N 83° W	8·0	7·8	7·9	− 1	75	·745	5·6	8	8·90	− 0·90	8·05	6·28	+ 1·77	19·94	22·48	− 2·54	2·20	Akola	Berar	11
					2	9	17	3	S 76° W	10·3	9·2	6·1	+ 51	76	·736	5·9	8	10·00	− 2·00	7·01	6·44	+ 0·57	20·97	23·77	− 2·80	1·93	Amraoti.		
						4	15	12	N 78° W	9·3		7·6	+ 22	76	·749	4·8	8	10·70	− 2·70	5·69	7·05	− 1·36	23·74	22·10	+ 1·64	1·80	Khandwa	Central Provinces (West).	42
						30		1	S 47° W	4·2	4·3	3·4	+ 26	83	·829	6·1	11	15·00	− 4·00	10·71	14·68	− 3·97	21·81	38·83	−17·02	2·94	Hoshangabad.		
	2	1			2	6	16	10	N 81° W	8·2		8·0	+ 3	79	·791	6·8	10	12·60	− 2·60	9·43	11·06	− 1·63	21·15	34·96	−13·81	3·53	Nagpur.		
1		1		1	1	8	14	5	S 82° W	8·0	7·1	5·4	+ 31	73	·789	6·2	8	13·00	− 5·00	4·18	13·90	− 9·72	18·17	40·40	−22·23	1·62	Chanda	Central Provinces (Central).	
	4	1		1	2	4	7	12	N 66° W	5·1		4·8	+ 6	79	·742	3·9	13	16·40	− 3·40	7·01	12·49	− 5·45	22·74	40·21	−17·47	1·59	Seoni.		
1		1	1	3	2	6	12	5	S 76° W	3·9	3·4	4·0	− 26	83	·815	5·1	11	16·30	− 5·30	7·67	16·48	− 8·81	26·63	40·68	−20·05	3·72	Jubbulpore.		
	3		1	1	2	4	20		S 83° W	7·3	8·3	4·3	+ 93	79	·747	6·2	4	15·40	−11·40	5·76	12·97	− 7·21	22·13	37·53	−15·40	2·65	Saugor.		
1	1	1	2	3	3	9	8	3	S 57° W	6·4	6·8	7·9	− 14	85	·883	6·9	11	14·40	− 3·40	8·75	12·47	− 3·72	24·75	34·45	− 9·70	1·60	Sutna	Central India	19
3	1			2	2	18	4	1	S 48° W	4·9	4·5	7·3	− 38	80	·814	5·2	14	14·20	− 0·20	9·51	13·02	− 3·51	19·36	38·73	−19·37	2·37	Raipur	Central Provinces (East).	44
	2	1	1	2	3	15	4	3	S 53° W	3·8	3·7	3·0	+ 23	82	·891	6·3	23	17·10	+ 5·90	19·42	17·63	+ 1·79	45·85	53·42	− 7·57	3·67	Sambalpur.		
						8	17	6	S 87° W	15·8	15·6			79	·696	5·7	8	9·50	− 1·50	3·61	5·25	− 1·64	10·53	19·05	− 8·53	0·85	Aurangabad.	Hyderabad (North).	33
	13	1				2	1	14	N 2° W	8·0	6·7			76	·715	5·7	14	14·50	− 0·50	14·04	10·61	+ 3·43	24·72	26·76	− 2·04	3·66	Indur.		
		2				22	6	1	S 58° W	10·2	8·5			78	·698	2·8	11	12·50	− 1·50	7·91	8·39	− 0·45	12·10	23·93	−11·83	1·53	Bidar.		
	4					2	13	12	N 64° W	12·0	11·5			79	·732	6·8	10	8·10	+ 1·90	4·61	4·75	− 0·11	10·12	16·93	− 6·81	1·11	Gulbarga	Hyderabad (South).	53
						10	15	6	S 84° W	11·8	11·2			70	·680	3·0	9	8·70	+ 0·30	3·51	6·52	− 3·01	6·32	15·89	− 9·07	1·22	Raichur.		
						1	29	1	W	7·6	7·4			77	·752	6·5	6			5·06	7·61	− 2·55	9·01	19·70	−10·69	1·06	Hyderabad (Deccan).		
1						1	9	20	N 61° W	9·3		10·0	− 7	77	·713	6·5	8	12·09	− 4·00	5·72	7·61	− 1·89	9·13	19·70	−10·57	1·21	Secunderabad.		
5	2				1	2	11	10	N 71° W	10·9†	9·3†			72	·761	7·2	10	12·00	− 2·00	4·56			11·93			0·98	Hanumkonda.		
																				12·63	17·08	−4·45					X.—West Coast.		
		2			1	6	22		S 81° W	11·6		15·8	− 27	34	·908	7·6	15	19·50	−4·50	18·43	14·07	+ 1·36	42·74	60·46	−17·72	4·36	Bombay	Konkan	37
2		1	1	2	2	6	11	5	S 77° W	7·2	7·1	10·3	− 31	85	·877	6·9	16	23·70	−7·70	8·99	22·29	−13·30	62·55	89·62	−27·07	1·75	Ratnagiri.		
6	1		1	2			6	15	N 54° W	3·1†				88	·920	7·2	18			13·99	18·59	− 4·60	96·12	76·67	+19·46	1·97	Mormugao.		
8	2	5	2	1		1	9	3	N 42° W					87	·897	8·2	18			13·44	19·14	− 5·70	93·17	82·87	+10·30	2·29	Goa.		
13	1	2				5	7	3	N 85° W	3·5				86	·840	6·8	24	24·00	0	17·56	23·91	− 6·35	116·60	100·95	+15·65	3·65	Karwar.		
6	3	9	6	1		1	2	3	N 40° E	4·9				87	·872	7·0	16	18·60	−2·60	9·38	13·47	− 4·09	76·48	76·06	+0·42	1·76	Cochin	Malabar	33
12	2	1	3	1	1		2	9	N 29° W	6·4	8·1			89	·874	7·0	15	18·80	−3·80	9·78	15·80	− ·02	84·93	88·21	−3·31	1·62	Calicut.		
23	2	2						4	N 12° W	2·3		2·9	− 21	91	·874	7·4	21	24·40	−3·40	17·17	22·26	− 5·09	112·85	101·17	+11·68	2·69	Mangalore.		
6	10						1	14	N 29° W	6·5				84	·821	7·2	6	9·30	−3·30	4·80	4·15	+0·75	25·51	32·51	− 7·00	1·52	Trivandrum.		

† Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 226 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of Cist-Cistern above sea-level in feet.	Pressure 8 A.M., in inches.								Temperature of Air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	XI.—South India				−·005								91·8	+1·5	75·3	+0·8	83·5	+1·2	16·6					25·8
57	Madras (South)	Pamban	37	29·806		29·770	29·887	28th	29·762	7th	·125	82·9	89·5		79·7		84·6		8·8	93·3	9th	78·2	4th & 8th.	15·1
		Tinnevelly	168	29·674	−·012	29·771	29·761	31st	29·620	7th	·141	85·7	98·9	+2·2	79·9	+0·8	89·4	+1·5	19·0	103·4	13th	76·9	29th	126·5
		Madura	447	29·385	−·006	29·766	29·440	31st	29·332	19th	·108	82·9	96·7	+0·1	76·2	+0·4	86·5	+0·3	20·5	100·5	4th	72·0	4th	28·5
		Periya Kulam	945	28·904			28·978	27th	28·856	19th	·122	79·9	95·7		72·7		82·2		23·0	99·8	13th	68·5	29th	31·3
34	Madras (South Central).	Salem	940	28·915	−·019	29·796	28·980	28th	28·858	20th	·122	79·0	92·1	−0·1	73·5	+1·0	82·8	+0·5	18·6	98·2	8th	69·0	31st	29·2
		Coimbatore	1,348	28·504	−·005	29·800	28·573	28th	28·445	20th	·128	76·6	88·8	+0·1	72·0	+1·4	80·4	+0·8	16·8	92·4	4th	70·8	5 days	21·6
35	Coorg	Mercara	3,781	26·182	+·001		26·240	28th	26·111	20th	·129	65·3	72·0	+2·3	62·5	+0·5	67·3	+1·4	9·5	76·0	12th & 15th.	61·1	12th, 13th & 26th.	14·9
36	Mysore	Chitaldroog	2,405	27·445	−·004	29·774	27·506	13th	27·361	20th	·145	73·5	86·3	+4·2	69·1	+1·1	77·7	+2·7	17·2	91·1	9th	67·9	4 days	23·2
		Bangalore	3,021	26·877	−·006	29·798	26·936	28th	26·807	20th	·129	70·9	84·5	+2·7	67·0	+1·4	75·8	+2·1	17·5	90·3	15th	64·3	28th	26·0
		Hassan	3,091	26·818	−·009	29·810	26·864	28th	26·749	20th	·115	72·1	81·2	+2·9	65·0	+0·5	73·1	+1·7	16·2	86·0	15th	61·6	8th	24·4
		Mysore	2,518	27·378	−·006	29·819	27·434	28th	27·310	20th	·124	72·7	86·5	+2·5	67·0	+0·5	76·8	+1·5	19·5	92·1	15th	65·0	12th & 13th.	27·1
56	Madras (East Coast, South)	Negapatam	31	29·789	−·017	29·749	29·859	28th	29·727	7th	·132	83·7	93·7	0	79·0	+1·7	86·4	+0·9	14·7	100·1	2nd	75·0	19th	25·1
		Cuddalore	12	29·802	−·007	29·743	29·850	31st	29·747	7th	·103	82·5	92·9	−0·8	77·1	+0·8	85·0	0	15·8	97·7	3rd	73·2	16th	24·5
		Trichinopoly	255	29·561	−·006	29·768	29·643	28th	29·528	19th	·115	82·4	97·2	+0·6	77·3	+0·6	87·3	+0·6	19·9	101·6	3rd & 4th.	74·4	4th & 23rd.	27·2
		Madras	22	29·769	−·021	29·722	29·834	28th	29·714	19th	·120	82·4	94·0	+0·2	77·7	+0·4	85·9	+0·3	16·3	100·5	4th	73·0	25th	27·5
		Vellore	707	29·094		29·740	29·161	12th	29·026	20th	·135	80·5	93·4		7.·1		85·2		16·3	101·4	4th	71·5	25th	29·9
55	Madras (East Coast, Central).	Nellore	71	29·708	+·001	29·713	29·777	28th	29·644	20th	·133	83·8	95·8	+0·2	78·8	+0·1	87·3	+0·2	17·0	103·3	14th & 15th.	73·1	24th & 25th.	30·2
		Masulipatam	15	29·739	+·005	29·668	29·817	12th	29·665	19th	·152	82·4	92·1	+0·8	78·1	+0·5	85·1	+0·7	14·0	100·7	14th	73·6	16th	27·1
54	Madras (Central)	Cuddapah	433	29·368	−·013	29·739	29·443	12th	29·281	20th	·162	83·1	96·0	+2·3	78·1	+1·3	87·1	+1·8	17·9	102·2	2nd, 9th & 10th.	73·2	20th	29·0
		Kurnool	958	28·846	+·004	29·747	28·930	12th	28·748	20th	·182	79·6	93·1	+3·3	75·1	+1·4	84·1	+2·4	18·0	99·2	10th & 14th.	69·5	19th	29·7
		Bellary	1,475	28·336	−·005	29·756	28·299	12th	28·253	20th	·141	78·7	94·5	+3·7	74·9	+1·3	84·7	+2·5	19·6	98·0	4 days.	72·2	15th	25·8
52	Madras (East Coast, North).	Cocanada	26	29·686	−·007	29·647	29·783	12th	29·576	19th	·207	82·5	92·2	+2·5	79·1	+0·6	85·7	+1·6	13·1	100·1	8th	73·5	30th	26·6
		Waltair(Vizag.)	226	29·475	+·005	29·641	29·553	12th, 22nd	29·364	19th	·189	82·9	89·8	?	79·0	−0·2	84·4	?	10·8	94·9	24th	74·9	16th	20·0
		Gopalpur	21	29·652	+·020	29·613	29·735	12th	29·535	25th	·200	82·7	88·6	+1·2	78·1	−0·7	83·4	+0·3	10·5	92·3	3rd & 30th.	74·1	30th	18·2
	XII.—Hill Stations.																							
													95·0		59·7		77·4		35·3	99·4	9th	47·1	19th	52·3
48	Baluchistan	Chishin										74·2	93·0	+2·5	61·4	+0·3	77·2	+1·4	31·6	98·6	10th	48·9	19th	49·7
		Quetta	5,502	24·510	+·031		24·569	31st	24·349	11th	·220	76·0	92·5	+2·1	43·2	−4·9	67·9	−1·4	49·3	98·5	9th	31·8	19th	66·7
		Kelat										84·4	98·8	+0·8	71·6	+1·3	85·2	+1·1	27·2	105·2	9th	66·1	18th	39·1
		Chaman	4,311	25·461	−·026?		25·544	31st	25·312	11th	·232	56·2	75·0	−4·4	46·7	−3·1	59·9	−3·8	26·3	81·7	9th	37·7	13th	44·0
		Leh	11,503	19·687	+·023		19·788	31st	19·503	11th	·285	66·3	84·2	+0·3	60·2	−2·7	72·2	−1·2	24·0	91·9	8th & 9th.	54·7	20th	37·2
30	Punjab and North-West Frontier Provinces.	Srinagar	5,204	24·809	+·102?		24·966	27th	24·554	11th	·412	52·5	69·7		45·5		57·6		24·2	77·8	10th	38·6	20th	39·2
		Sonemarg		21·791			21·876	31st	21·615	11th	·261	59·1	67·1		46·7		56·9		20·4	75·1	9th	39·8	14th	35·3
		Gulmarg		21·816			21·900	31st	21·634	11th	·266	67·3	84·3		58·7		71·5		25·6	96·6	9th	51·7	14th	44·9
		Skardu		22·739			22·870	31st	22·534	11th	·336	59·1	76·5		46·8		61·7		29·7	88·0	9th	39·1	20th	48·9
		Dras		20·756			20·849	21st	20·557	11th	·292	77·1	94·5	+0·3	70·4	−1·7	82·5	−0·7	24·1	105·6	8th & 9th.	59·5	14th	46·1
		Gilgit	1,890	24·946			25·082	14th	24·709	11th	·373	76·3	97·8		65·3		81·6		32·5	104·7	11th	59·5	19th	45·2
		Chitral		24·366			24·500	17th	24·125	11th	·375	77·7	94·9		71·9		83·5		23·0	101·8	8th	63·4	15th	38·4
		Killa Drosh										74·6	87·0		65·2		76·1		21·8	95·3	10th	58·	14th	37·1
		Para Chinar	6,000	24·366			24·469	28th	24·171	11th	·298	76·8	91·5	+4·6	70·7	+0·5	81·1	+2·6	20·*	100·9	9th	61·0	12th	39·9
		Cherat		25·573	+·051		25·687	31st	25·372	11th	·315													

* Mean of 30 days.

I—*continued.*

in India, Burma, etc., in August, 1902 —continued.

Wind Direction. Number of winds from Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 31st August 1902.	Normal rainfall for period, 1st May to 31st August.	Variation from normal of period, 1st May to 31st August.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				4·01	4·25	−0·24					XI.—South India.		
	1	2		8	6	10	4		S 14° W	11·3	12·0			79	·890	3·0	0	0·60	− 0·60	0	0·81	− 0·81	1·75	1·65	+ 0·10	0	Pamban	Madras (South).	57
	2					2	13	14	N 66° W	7·4	7·1			59	·726	4·7	0	1·00	− 1·00	0	0·48	− 0·48	4·40	2·68	+ 1·72		Tinnevelly.		
7	8					1	1	14	N 56° W	1·8	1·8	3·7	− 51	70	·791	5·1	9	6·20	+ 2·80	7·02	3·69	+ 3·33	13·74	9·65	+ 5·09	2·20	Madura.		
18	3	2	2		2	1	3		N 8° W	3·5	3·9			68	·693	4·4	2	3·80	− 1·80	1·57	1·88	− 0·31	8·00	6·35	+ 1·65	1·09	Periya Kulam		
9	1				3	13	5		S 52° W	2·2	2·0	4·2	− 52	81	·811	6·6	13	9·50	+ 3·50	7·29	7·47	− 0·18	25·14	18·93	+ 6·21	1·50	Salem	Madras (South Central).	34
			1		6	18	6		S 44° W	6·5	5·8	7·3	− 22	84	·787	4·6	1	3·00	− 2·00	0·77	1·12	− 0·35	12·24	6·28	+ 5·96	0·69	Coimbatore.		
9							16	6	N 73° W	4·8	4·5	8·9	− 49	95	·607	8·4	18	26·70	− 8·70	12·12	26·36	−14·24	78·66	99·84	−21·18	1·74	Mercara	Coorg.	35
						5	19	7	N 87° W	9·7	8·4			80	·666	7·9	2	7·80	− 5·80	0·91	2·68	− 1·77	6·20	13·01	− 6·81	0·46	Chitaldroog	Mysore.	36
						9	20	2	S 80° W	10·0	8·7	7·6	+ 14	84	·636	8·2	8	10·40	− 2·40	3·13	5·36	− 2·23	11·12	16·69	− 5·57	0·50	Bangalore.		
						4	16	11	N 80° W	3·7	3·2			80	·630	8·0	5	9·60	− 4·60	1·53	3·37	− 1·84	16·60	17·40	− 0·80	0·38	Hassan.		
						17	12	2	S 67° W	8·9	9·6			79	·632	8·6	4	6·40	− 2·40	1·14	2·93	− 1·79	12·29	12·43	− 0·14	0·38	Mysore.		
3					2	17	8	1	S 57° W	5·6	4·9	5·7	− 14	72	·842	4·9	7	5·70	+ 1·30	3·87	3·06	+ 0·21	6·18	8·65	− 2·47	1·32	Negapatam	Madras (East Coast South).	56
19						4	8		S 75° W	2·4	3·0			78	·869	8·1	10	8·00	+ 2·00	3·65	5·33	− 1·68	9·96	11·14	− 1·18	0·58	Cuddalore.		
8						4	17	2	S 86° W	5·6		8·2	− 32	70	·771	4·8	4	5·40	− 1·40	4·42	4·35	+ 0·07	9·05	10·10	− 1·05	1·89	Trichinopoly.		
					7	10	12	2	S 58° W	6·6		7·3	− 10	76	·861	6·7	6	12·60	− 6·60	3·26	5·34	− 2·08	8·06	12·47	− 4·41	2·17	Madras.		
4	3	2	1	7	4	2		8	S 45° E	3·7	3·7			74	·766	7·4	11	7·90	+ 3·10	8·90	5·31	+ 3·59	14·85	14·53	+ 0·32	1·42	Vellore.		
3	1			1	3	4	9	10	N 85° W	6·4				70	·804	7·5	7	5·40	+ 1·60	4·40	4·03	+ 0·37	10·19	8·46	+ 1·73	1·39	Nellore	Madras (East Coast, Central).	55
4	1				1	7	13	5	S 86° W	7·9	7·6	7·8	− 3	89	·985	8·8	13	9·80	+ 3·20	7·27	6·89	+ 0·38	15·69	18·64	− 2·95	1·32	Masulipatam		
						3	13	15	N 72° W					70	·788	6·6	9	8·00	+ 1·00	5·73	6·15	− 0·42	13·08	15·02	− 1·94	1·47	Cuddapah	Madras (Central).	54
	2				1	10	4	14	N 80° W					70	·707	5·6	10	9·20	+ 0·80	4·02	5·94	− 1·92	7·14	15·20	− 8·06	0·78	Kurnool.		
1						4	15	11	S 54° W	11·3	11·9	10·7	+ 11	66	·654	6·1	3	4·10	− 1·10	1·13	2·32	− 1·19	10·20	7·76	+ 2·44	0·67	Bellary.		
						19	8	4	S 66° W	7·3	6·1			81	·906	6·3	8	9·70	− 1·70	5·55	5·40	+ 0·15	15·59	17·03	− 1·44	1·80	Cocanada	Madras (East Coast, North).	52
1		1	2	1		25	1		S 41° W	11·6				78	·879	8·3	6	8·40	− 2·40	7·30	5·32	+ 1·98	13·49	16·15	− 2·66	3·75	Waltair (Vizag.)		
2	7	1		1	5	8	2	5	S 89° W	11·4	11·2	9·1	+ 23	84	·929	4·8	17	10·60	+ 6·40	9·38	7·96	+ 1·42	23·64	23·95	− 0·31	2·55	Gopalpur.		
																											XII.—Hill Stations.		
																	0	0·20	− 0·20	0	0·15	− 0·15	0	0·45	− 0·45	0	Pishin	Baluchistan.	48
31									Calm	1·2	1·3	4·5	− 71	55	·469	0·3	0	0·70	− 0·70	0	0·62	− 0·62	0·65	2·19	− 1·54	0	Quetta.		
	7		8		14		2		S 41° E					43	·384		1	0·50	+ 0·50	0·10	0·31	− 0·21	1·46	1·65	− 0·19	0·10	Kalat.		
12	1	1			2	12	2	1	S 52° W	8·3	9·1			22*	·256*	0·2	0	0	0	0	0	0	0·02	0·28	− 0·26	0	Chaman.		
		11	5	3	8	1	3		S 75° E	2·3				55	·255	4·4	1	1·70	− 0·70	0·47	0·54	− 0·07	1·22	1·33	− 0·11	0·29	Leh	Punjab and N.-W. Frontier Province.	30
12	3	3		5	6	1		1	S 44° E	3·0	3·2			87	·571	4·7	7	4·70	+ 2·30	1·76	1·74	− 0·18	10·43	9·30	+ 1·13	0·62	Srinagar.		
12		14	3	2					N 59° E	4·5	4·1			87	·346	3·9	9			4·25			15·05			0·91	Sonemarg		
6		3	10	5	2	2	2	1	S 71° E	4·1	4·7			81	·415	3·8	13			3·97			13·82†			0·79	Gulmarg		
15	1	7	2		1	2	3		N 36° E	5·0	5·1			49	·328	4·1	0	1·10	− 1·10	0·18	0·96	− 0·78	1·33	2·72	− 1·39	0·05	Skardu.		
27						3	1		S 56° W	8·6	8·9			56	·280	4·4	4	1·40	+ 2·60	0·98	0·58	+ 0·40	4·15	4·59	− 0·44	0·33	Dras.		
28						3			S 45° W	4·2	3·7			39	·349	4·2	1	1·80	− 0·80	0·40	0·34	+ 0·06	2·21	2·10	+ 0·1	0·22	Gilgit.		
29		1	1						N 63° E	5·0	4·8			47	·420	1·2	0			0·02			1·10			0·02	Chitral.		
30						1			S 45° W					43	·411	0·9	0			0·14			2·62			0·08	Killa Drosh.		
29				1	1				S 27° E	3·6				55	·460	3·7	5	·0	− 1·40	1·93	2·57	− 0·64	9·77	9·83	− 0·06	0·81	Para Chinar.		
1	1	4		5	8	5		7	S 18° E	6·2	5·8			60	·537	1·6	3			2·77	3·21	− 0·44	6·76	10·03	− 3·27	2·25	Cherat.		

† Since 23rd May.

Table

Abstract of Observations taken at 8 A.M. at 226 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
30	Punjab—(*concld.*)	Murree	6,333	23·753	+·010		23·850	28th	23·603	11th	·247	67·3	75·4	+1·0	58·1	−2·9	66·8	−1·0	17·3	84·3	9th	47·9	1st	36·4
		Poo											75·8		56·2		66·0		19·6	81·4	8th & 22nd.	47·3	3rd	34·1
		Simla	7,224	23·039	+·030		23·110	31st	22·890	11th	·220	62·0	67·3	+0·2	59·0	−0·5	63·2	−0·2	8·3	71·4	8th	53·2	13th	18·2
25	United Provinces.	Chakrata	7,022	23·193	+·015		23·280	31st	23·032	11th	·248	62·2	68·1	−0·7	59·0	−0·5	63·6	−0·6	9·1	72·2	4th	49·8	13th	22·4
		Mussooree	6,705	23·465	+·026		23·546	31st	23·308	11th	·238	62·8	69·3	+0·2	59·7	−0·2	64·5	0	9·6	73·3	4th & 18th.	53·9	13th	19·4
		Ranikhet	6,069	23·95 /	+·018		24·088	31st	23·828	11th	·260	66·5	73·2	+0·8	62·8	+0·6	68·0	+0·7	10·4	79·0	8th	58·5	12th	20·5
		Muktesar		22·771			22·854	31st	22·607	11th	·247	61·5	69·0		57·6		63·3		11·4	74·5	8th & 18th.	53·8	13th	20·7
13	Bengal	Yatung	10,480P																					
		Darjeeling	7,376	22·948	−·003		23·029	27th	22·833	11th	·196	60·9	66·6	+1·1	57·6	+0·4	62·1	+0·8	9·0	70·2	22nd & 24th.	56·1	5 days	14·1
	Assam Hill Tracts	Shillong	4,920	25·038			25·112	23rd	24·939	11th	·173	68·4	74·6		64·0		69·3		10·6	79·6	24th	60·0	28th	19·6
		Cherra Poonjee	4,309	25·586			25·656	27th	25·511	11th	·145	68·3	73·0		65·5		69·3		7·5	81·3	24th	63·0	12th	18·3
	Central India	Mount Abu	3,945	25·881	+·015		25·987	13th	25·784	22nd & 29th.	·203	67·3	76·9	+4·9	65·2	+1·0	71·1	+3·0	11·7	83·2	21st	63·4	1st, 4th & 5th.	19·8
		Pachmarhi	3,528	26·291	+·015		26·389	13th	26·170	21st	·219	70·6	79·5	+4·8	68·6	+1·5	74·1	+3·2	10·9	85·1	18th & 19th.	66·2	9th, 14th & 15th.	18·9
	South India	Wellington	6,200	24·197	−·001		24·248	28th	24·150	19th & 20th.	·098	64·4	73·4	+2·0	56·6	−0·5	65·0	+0·8	16·8	76·7	1st	52·2	29th	24·5
		Kodaikanal	7,688	22·791			22·843	28th	22·747	20th	·096	57·7	64·4		53·4		57·2		11·0	67·5	12th	50·9	29th	16·6
		Ootacamund		23·017			23·065	28th	22·959	20th	·106	57·3	63·7		52·7		58·2		11·0	67·0	12th & 19th.	49·3	9th & 15th.	13·7
		Dodabetta†		21·989			22·027	9th	22·921	20th	·106	55·5												
XIII.—Extra India.																								
	Ceylon	Trincomalee	12	29·817	P	29·785	29·917	28th	29·772	7th	·145	81·1	92·0	−0·1	77·7	+0·7	84·9	+0·3	14·3	95·0	23rd	75·5	9th	19·5
		Colombo	40	29·859	−·026	29·825	29·927	31st	29·797	7th	·130	81·6	87·2	+1·6	78·1	+0·6	82·7	+1·1	9·1	89·0	5 days.	75·0	17th	14·0
												79·5			63·2	+2·7						53·8	14th	
	Persia	Meshed	3,104																					
		Teheran		25·813 †† / 24·729			25·920 / 24·840	9th / 9th	25·709 / 24·600	11th & 12th. / 27th	·220 / ·240	85·4	99·5	+2·8	74·2	+3·5	86·9	+3·2	25·3	103·2	4th	69·9	7th & 19th.	33·3
		Ispahan		**24·215§			24·350	18th	24·100	12th & 13th.	·250	78·5§	97·6§	+2·1	61·0§	−0·4	79·3§	+0·9	36·6	100·5	10th	51·1	21th	46·4
		Bushire	14	29·573	+·029	29·546	29·671	17th	29·453	11th	·218	90·5	97·2	+0·2	83·2	−0·8	90·3	−0·3	14·0	107·0	8th	74·5	8th	32·5
		Bahrein‖‖	30	29·585			29·679	17th	29·453	11th	·226	91·8	98·9		84·5		91·8		14·4	104·3	11th	80·3	25th	24·0
		Jask ¶¶		29·579	−·043	29·549	29·676	15th	29·424	22nd	·252	88·2	91·8	+0·4	83·8	+0·2	89·3	+0·3	11·0	106·7	21st	80·2	15th & 27th.	26·5
		Muscat	20	29·567	+·004	29·564 ‡‡	29·691	16th	29·461	25th	·230	87·1 ‡‡	88·6 ‡‡	+0·7 ‡‡	85·2 ‡‡	+0·9 ‡‡	87·0 ‡‡	+0·8 ‡‡	3·4 ‡‡	93·9	3rd	81·2	16th	12·7
	Arabia	Baghdad	220	29·487‡	−·028	29·668	29·614	18th	29·369	13th	·245	91·3	116·0	+8·0	83·8	+5·8	99·9	+6·9	32·2	119·6	24th	77·8	14th	41·8
		Bussrah		29·614			29·714	18th	29·466	14th	·248		106·0		84·4		95·2		21·6	111·4	27th & 31st.	80·4	29th	31·0
		Aden	94	29·590	−·060	29·614	29·680	1st	29·471	22nd	·209	89·0	94·8	+3·3	84·3	+4·7	89·6	+4·0	10·5	98·5	17th	81·8	9th & 10th	16·5
		Perim	201	29·519	−·021	29·618	29·570	9th	29·430	22nd	·140	90·8	98·2	+2·1	86·3	+2·8	92·2	+2·5	11·9	102·9	16th	82·6	14th	20·3
	Afghanistan	Kabul										70·4	93·8	+1·4	57·8	−1·8	75·8	−0·2	36·0	98·1	1st & 23rd.	52·4	24th & 25th.	45·7
	Central Asia	Kashgar	4,255	25·518 (*a*)			25·800	21st	25·310	13th	·490	73·5	88·4	+0·2	64·2	−1·1	76·3	−0·5	21·2	95·3	10th	52·8	14th	41·5
	Arabian Sea Islands.	Amini Devi	13																					
		Minicoy	7	29·911		29·843	29·969	28th	29·859	21st	·110	81·7	86·4	+1·0						88·4	12th & 16th.			
	Africa	Zanzibar	73	30·047	−·040	30·047	30·113	1st	29·982	14th	·131	75·5	82·0	+1·2	73·6	+0·9	77·8	+1·1	8·4	84·3	27th	72·1	25th	12·2
		Do. Dunga					Imperfect.					74·9	85·1		68·2‡		76·7‡		16·9	89·3	29th	65·4	9th & 14th.	23·9
	Straits Settlements.	Penang	20																					
		Singapore	10																					

† 1 P.M. Observations.
‡ Mean of 28 days.
§ „ 30 „
‖ Mean of 29 days.
¶ „ 17 „
(*a*) Aneroid corrected.

Note.—When a query is inserted against any reading or in the varian returns of any

I—*concluded.*

in India, Burma, etc., in August, 1902—concluded.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May, to 31st August 1902.	Normal rainfall for period, 1st May to 31st August.	Variation from normal of period, 1st May to 31st August 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
21	2	1		1	2		2	2	N 56° W	5·5	5·9	4·8	+ 23	76	·516	2·8	10	15·60	−5·60	8·51	13·62	− 5·11	25·53	31·96	− 6·43	1·73	Murree.	Punjab—(*concld.*)	30
16		1	3	1		6	1	2	S 34° W							6·0	5			2·67	0·45	+ 2·22	6·55	2·57	+ 3·98	1·49	Poo.		
3	13	3	3	2	1	1		5	N 8° E	4·6		1·6	+188	83	·466	5·9	15	18·90	−3·90	8·68	17·67	− 8·99	28·71	45·42	−16·11	1·24	Simla.		
15	7	1		1	6			1	N 23° E	8·8		4·3	+105	89	·508	6·7	15	20·10	−5·10	11·20	19·18	− 7·98	43·42	50·45	− 7·03	2·32	Chakrata .	United Provinces.	25
	1		8	2	1	6	12	1	S 55° W					90	·525	5·7	17	22·10	−5·10	27·90	31·43	− 3·53	63·73	73·84	−10·11	6·77	Mussooree.		
9		2	4	2		5	7	2	S 68° W	3·4	3·9	1·9	+105	86	·574	6·7	14	18·50	−4·50	12·83	14·33	− 1·80	29·26	36·94	− 7·68	4·42	Ranikhet.		
	2	1	4	10	1	2	1	10	N 82° W	6·6	6·1			91	·497	7·0	16			10·24			30·20			2·87	Muktesar.		
																¶¶		24·43			9·68			31·20			Yatung .	Bengal.	13
15	1	1	2	6	1	1	2	2	S 45° E	2·4	2·2	3·4	−35	96	·609	9·1	24	24·13	−0·13	27·20	26·83	+ 0·37	91·66	92·88	− 1·22	7·91	Darjeeling.		
15	1	1	3	4	2	4	1		S 25° W	1·7	1·9			85	·595	6·3	21	18·50	+2·50	26·86			57·48			10·33	Shillong .	Assam Hill Tracts	8
2	1	3	1	2	3	5	2		S 11° W	0·6	0·7			92	·640	8·1	26	25·70	+0·30	84·33			333·81			28·69	Cherra-Poonjee.		
	3	2		1	1	19	5		S 57° W	13·4	13·5	10·8	+25	90	·600	8·5	11	17·20	−6·20	13·62	20·21	− 6·59	18·97	50·64	−31·67	4·87	Mount Abu	Central India.	
6	3					1	9	12	N 60° E	10·4	10·7	7·5	+43	87	·649	7·2	13	21·80	−8·80	16·96	20·68	− 3·72	38·75	57·21	−21·46	5·28	Pachmarhi.		
17		2		1		9	1	1	S 50° W	2·8		3·8	−26	77	·468	6·7	5	8·90	−3·90	4·60	4·13	+ 0·47	15·15	14·88	+ 0·27	3·01	Wellington .	South India.	
	7	1	1	3	3	1	4	11	N 42° W	10·8				82	·394	6·6	6	11·30	−5·30	4·01	5·99	−1·98	15·36	20·36	− 5·00	2·16	Kodaikanal.		
17						6	6	2	S 76° W	2·7	2·5			86	·406	7·5	10	11·30	−1·30	3·37	4·70	— 1·33	29·72	22·75	+ 6·97	0·67	Ootacamund.		
														92	·406	8·7	13			7·46						1·40	Dodabetta .		
																											XIII.—Extra India.		
2						29			S 45° W					86	·919	2·5	6			1·91	4·64	— 2·73	4·67	10·58	− 5·91	0·68	Trincomalee	Ceylon.	
1					11	17	2		S 30° W	8·2		8·7	− 6	85	·924	7·2	8			2·65	3·90	— 1·25	29·36	28·08	+ 1·28	0·75	Colombo.		
														42	·426	0	0			0·06	0·01	+ 0·05	0·06	0·99	− 0·93	0·06	Meshed .	Persia.	
7	1	5	3		4	11			S 8° W	1·1‖	1·5‖			30	·367	1·1	0			0	0·05	− 0·05	0·36	0·83	− 0·47	0	Teheran.		
														47§	·459§	1·3§	0			0	0	0	0·04	0·17	— 0·13	0	Ispahan.		
21	2	2		1	1	1		2	N	4·0	5·2																		
10	5	7	3	1	1	1		3	N 32° E	6·4	7·6	7·8	− 3	59	·849	0·5				0	0	0	0	0	0	0	Bushire.		
	2	2	3	3	3	2	4	9	N 59° W					86	1·289					0			0			0	Bahrein.		
1	1		11	6		1		1	S 79° E	12·9	15·0			78	1·031	1·8				0	0		0	0·13	− 0·13	0	Jask.		
				31					S 45° E	3·6	3·3			84	1·086	1·5				0	0	0	0	0·40	− 0·40	0	Muscat.		
15	4	1	1				2	5	N 27° W	§§ 2·2	§§ 2·9			‡‡ 40	‡‡ ·585	1·1‡				0	0·09	− 0·09	0	0·33	− 0·33	0	Baghdad .	Arabia.	
																				0			0			0	Bussrah.		
1		1	7	6	8	8			S 20° E			10·8		76	1·054	4·9				0	0·14	− 0·14	0	0·37	− 0·37	0	Aden.		
		1	5	1		14	7	3	S 58° W	12·1	10·9			70	1·010	0·8	0			0	0·43	− 0·43	1·35	0·83	+ 0·52	0	Perim.		
		2	5	4	8	11	1		S 3° E					37	·279	0·3	0			0	0·18	− 0·18	0·67	1·13	− 0·46	0	Kabul .	Afghanistan.	
21	1				2		1		S 45° W	1·8	1·7			49	·404	2·4	0			0	1·10	− 1·10	0	2·58	− 2·58	0	Kashgar .	Central Asia.	
																					5·04			32·19			Amini Devi	Arabian Sea Islands.	
	2					3	13	13	N 69° W	8·3	8·9			80	·865	6·2	11			6·68	6·49	+ 0·19	41·74	28·15	+13·59	1·32	Minicoy.		
		1	1	6	15	7	1		S	6·7	6·3			87‡	·772‡	7·2	2			0·61	1·90	− 1·29	18·63	16·33	+ 2·30	0·35	Zanzibar .	Africa.	
9	1			3	8	10			S 17° W	4·4§	4·3§			88	·764	6·5	2			0·87			15·50			0·39	Do. Dunga.		
																											Penang .	Straits Settlements.	
																											Singapore.		

station, the data for that station are not utilized in calculating the provincial variations.

** Aneroid uncorrected. †† Mountain uncorrected. ‡‡ Mean of 20 days. §§ Mean of 27 days. ‖‖ Observation of 26 days. ¶¶ Observation of 24 days.

Table II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63 Stations in India, Burma, etc., in August 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Bay Islands.	Port Blair	61	29·791	29·713	·078	29·748	+·001	29·740	85·0	77·2	7·8	89·1	74·3	14·8	82·3	82·6	80·1	+ 0·2	75·0	78·9	78·7	77·5
	Rangoon	41	·763	·684	·099	·720	−·034	·698	85·3	76·0	9·3	90·0	72·9	17·1	81·1	81·7	79·2	+ 0·7	74·9	78·2	78·0	77·0
	Diamond Island	41	·771	·683	·088	·723	−·022	·699	84·7	77·4	7·3	87·2	74·0	13·2	82·3	82·2	80·1	+ 1·6	74·5	78·7	78·3	77·2
	Cocos Island	119									Not received.											
	Akyab	20	·737	·644	·093	·695	−·012	·657	86·8	73·0	8·8	89·9	73·0	16·9	82·8	83·7	81·2	+ 1·0		80·5	80·4	
Bengal and Orissa.	Chittagong	87	·635	·528	·107	·589	−·015	·623	87·4	76·8	10·6	91·6	73·6	18·0	84·4	84·8	81·1	+ 1·4	75·8	79·4	79·9	78·4
	Calcutta (Alipore)	21	·659	·560	·099	·615	+·019	·581	89·8	78·6	11·2	94·2	74·7	19·5	85·8	86·5	84·0	+ 1·5	77·3	80·6	80·7	79·5
	Saugor Island	25	·646	·555	·091	·606	+·015	·575	89·7	80·9	8·8	91·7	77·8	13·9	86·1	87·3	84·3	+ 1·9	78·6	81·9	82·4	81·0
	False Point	2	·655	·560	·095	·613	−·005	·575	88·2	78·6	9·6	92·5	74·1	18·4	85·6	85·8	82·4	+ 0·9	77·3	80·9	80·7	79·6
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·674	27·586	·088	27·632	+·013	·557	86·2	74·6	11·6	91·4	71·8	19·6	81·1	83·0	79·2	+ 1·9	72·8	74·8	75·3	74·3
	Darbhanga	166	29·498	29·386	·112	29·447	+·009	·535	89·7	80·5	9·2	93·5	76·5	17·0	86·0	87·8	84·2	+ 1·3	78·2	81·6	82·1	80·6
	Allahabad	309	·348	·246	·102	·301	+·028	·560	91·8	78·8	13·0	98·6	74·7	23·9	86·9	89·0	81·0	+ 0·8	76·4	80·3	81·2	79·3
Upper Sub-Himalayas.	Dehra Dun	2,233	27·448	27·381	·067	27·408	+·001	·567	84·5	72·2	12·3	89·8	68·4	21·4	79·3	80·8	76·8	− 1·2	69·8†	74·1	75·6	73·3
	Roorkee	899	28·737	28·648	·089	28·689	+·001	·541	90·1	76·6	13·5	97·5	71·4	26·1	84·1	88·1	82·2	− 0·8	75·1	77·5	79·2	77·3
	Meerut	738	·873	·786	·087	·823	−·010	·512	92·2	78·8	13·4	98·6	73·3	25·3	86·0	89·9	81·8	+ 1·0	76·3	78·8	80·0	78·4
	Lahore	702	·901	·811	·090	·849	+·006	·498	99·5	81·0	18·5	108·4	69·9	38·5	91·3	97·5	89·4	+ 2·8	76·3	80·0	81·0	79·1
	Ludhiana	812	·799	·719	·080	·753	+·008	·515‡	96·1	81·3	14·8	105·2	75·1	30·1	89·5‡	94·1	87·8	+ 2·1	75·7	78·4	78·4	77·5
N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.	Peshawar	1,110	·511	·385	·126	·441	+·069	·494	103·1	77·8	25·3	111·0	72·7	38·3	93·6	100·0	89·4	+ 2·7	70·1	77·1	76·3	74·5
	Jacobabad	186	29·381	29·280	·101	29·323	+·001	·461	107·2	82·9	24·3	115·2	79·1	36·1	95·0	102·2	93·5	+ 1·9	78·8	P	P	P
	Kurrachee	30	·638	·564	·074	·604	+·014	·584	90·8	79·7‡	11·1	93·4	74·4	19·0	86·2	86·8	83·9‡	+ 1·	75·9	79·1	79·6	78·4
East Rajputana, Central India, and Gujarat.	Jaipur	1,431	28·246	28·150	·096	28·197	+·011	·555	94·6	77·8	16·8	105·0	73·0	33·0	87·0	91·9	84·8	+ 3·4	73·0	77·0	78·1	76·0
	Udaipur	1,925	27·787	27·698	·089	27·743		·590	89·4	75·4	14·0	97·7	70·6	27·1	82·8	86·1	81·6		72·1	75·1	76·9	74·7
	Deesa	466	29·248	29·115	·113	29·169	−·003	·581	95·1	78·4	16·7	105·2	73·2	32·0	85·7	93·0	86·0	+ 4·5	73·8	75·1	77·0	75·6
	Jamnagar	61	·669	·579	·090	·624		·631	91·1	77·6	13·5	96·9	74·2	22·7	86·2	87·5	83·4		74·4	78·2	79·0	77·2
Deccan.	Belgaum	2,539	27·300	27·220	·080	27·260	0	·711	79·7	66·4	13·3	85·3	64·9	20·4	74·7	76·0	71·5	+ 2·0	66·2	69·8	70·1	68·7
	Sholapur	1,590	28·200	28·071	·129	28·142	−·011	·650	93·4	72·8	20·6	99·3	68·9	30·4	83·2	89·6	81·6	+ 3·5	69·2	72·3	73·0	71·5
	Akola	930	·809	·684	·125	·744	+·003	·615	90·7	74·6	16·1	97·8	70·0	27·8	84·1	89·7	82·7	+ ·1	71·3	75·0	75·9	74·1
	Buldana	2,132	27·630	27·529	·101	27·577	+·003	·623	85·8	69·9	15·9	92·6	65·7	26·9	78·5	83·9	77·7	+ 2·4	67·4	71·2	72·3	70·3
	Khandwa	1,044	28·682	28·573	·109	28·626	+·009	·614	89·5	75·2	14·3	97·1	71·3	25·8	82·6	88·1	81·4	+ 3·1	71·4	74·7	76·2	74·1
	Nagpur	1,025	·683	·574	·109	·627	+·015	·594	91·0	76·0	15·0	98·9	72·5	26·4	83·8	87·0	82·8	+ 2·	72·8	76·0	76·5	75·1
	Nagpur (Sanitary Commr.'s Office)	1,013	·699	·589	·110	·642		·599	91·7	76·3	15·4	99·9	72·9	27·0	85·1	87·6	83·0		73·2	77·2	77·8	76·1
	Hyderabad (Deccan).	1,690	·086	27·977	·109	·036	+·036	·648	89·4	74·2	15·2	95·7	70·3	25·4	82·4	84·6	80·6	+ 3·3		74·1	75·7	
West Coast.	Bombay	37	29·773	29·697	·076	29·732	+·005	·710	85·8	78·3	7·5	88·2	74·4	13·8	82·6	83·4	81·6	+ 1·7	75·7	78·2	78·0	77·3
	Karwar	44	·829	·749	·080	·786	−·001	·762	84·0	75·7	8·3	86·2	73·4	12·8	81·4	82·6	79·6	+ 1·8	73·9	77·0	77·4	76·1

† Mean of 28 days. ‡ Mean of 30 days.

II.

Stations in India, Burma, etc., in August, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from										Wind steadiness.		Wind velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·845	·947	·939	·910	+·017	90	86	84	87	+1	7·5	8·0	7·8	+0·3					1	3	27	26	5	S. 68° W.	S. 49° W.	84	82	343*	242	29·68	3·00	Port Blair	Burma Coast and Bay Islands.
·854	·927	·912	·898	+·010	95	87	84	89	−1	8·6	8·5	8·6	−0·3			1	3	16	12	12	16	2	S 20° W	S 38° W	52	65	39*	110	20·18	2·24	Rangoon	
·810	·935	·915	·887	+·014	86	84	83	84	·3	7·0	7·5	7·3	−0·7	1	1		1	2	4	32	18	5	S. 59° W.	S. 45° W.	74	78	243*	193	20·37	3·66	Diamond Island.	
	1·013	1·000				90	86			7·4	7·5	7·5	−0·7			1	2	24	16	15	3	1	S. 7° E.	S. 1° E.	69	63	83*	85	21·14	3·16	Cocos Island, Akyab	
·883	·939	·955	·926	+·020	96	79	80	85	−2	7·1	7·5	7·3	−0·4			3	2	19	16	14	2	6	S. 2° E.	S. 25° E	53	61	168*	142	15·98	8·17	Chittagong	Bengal and Orissa.
·922	·975	·970	·956	−·001	94	79	77	83	−5	8·4	7·9	8·2	−0·1	5	1	2	6	14	18	11	3	2	S. 9° E.	S. 14° E.	52	56	88	115	14·01	2·71	Calcutta (Alipore).	
·949	1·037	1·043	1·010	+·022	90	83	80	84	−3	7·8	8·1	8·0	+0·1		1	3	4	16	21	13	3	1	S. 7° E.	S. 13° W.	61	57	313	315	9·98	2·23	Saugor Island.	
·922	·991	·981	·965	+·032	94	81	79	85	0	7·8	7·5	7·7	−0·2	1	3	2	4	6	13	22	7	4	S. 31° W.	S. 47° W.	48	53	216*	238	15·04	3·25	False Point	
·786	·783	·782	·784	−·015	9	74	70	79	−6	9·8	9·7	9·8	+0·8	3	6	2	6	8	15	2	6	14	S. 44° W.	S. 4° W.	10	8	170*	185	6·71	1·42	Hasaribagh	Gangetic Plain and Chota Nagpur.
·935	1·025	1·022	·991	+·033	90	82	77	83	−1	7·0	6·2	6·6	+0·4	29		1	13	12		2	3	2	S. 65° E.	S. 77° E.	29	60	49	111	8·09	1·87	Darbhanga	
·883	·949	·960	·930	−·016	90	75	71	78	−5	7·4	7·6	7·5	−0·3	5	5	7	10	1	1	5	20	8	N. 53° W.	N. 16° E.	28	4	179*	134	9·27	2·40	Allahabad	
·708†	·795	·829	·777	−·016	89†	80	79	83	−4	6·8‖	7·3§	7·1	−0·6	15		2	1	8	12	5	8	10	S. 40° W.	S. 26° W.	27	14	22	24	21·33	3·43	Dehra Dun	Upper Sub-Himalayas.
·853	·860	·865	·866	+·002	93	74	67	78	0	4·8	4·3	4·6	−1·8	21		2	6	15	1	1	1	15	S. 87° E.	S. 24° E.	10	22	46	58	16·35	5·84	Roorkee	
·879	·894	·895	·889	+·011	89	72	65	75	−2	5·3	4·5	4·9	−1·6	13	3	4	7	6	4	13	6	6	S. 36° W.	S. 55° E.	14	10	36*	48	11·97	5·72	Meerut	
·84	·874	·839	·853	−·015	80	61	49	63	−2	2·8	2·4	2·6	−1·1	15	2	4	9	10	9	3	8	2	S. 31° E.	S. 80° E.	23	25	66	69	3·86	1·50	Lahore	
·816	·831‡	·765	·804	−·070	77	60‡	50	62	−11	3·5	3·2	3·4	−2·4	6		6	2	17		5	3	23	N. 45° W.	S. 58° E.	11	11	61*	39	3·97	2·12	Ludhiana	
·641	·732	·621	·666	−·109	67	47	33	49	−12	0·8	3·1	2·0	−0·9	11	11	21	7	1		5	3	3	N. 31° E.	N. 41° E.	43	51	62*	93	0·05	0·05	Peshawar	N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.
·935	?	?	?	?	83	?	?	?	?	1·8	2·2	2·0	−0·3	19	1	4	2	25	11				S. 42° E.	S. 44° E.	54	59	74*	101	1·18	0·56	Jacobabad	
·854‡	·902	·914	·890	+·021	85‡	72	72	76	−3	4·5	3·2	3·9	−2·8							30	31	1	S. 69° W.	S. 67° W.	91	88	400*	397	2·60	1·32	Kurrachee	
·755	·803	·789	·782	−·027	79	63	54	65	−11	5·3	6·0	5·7	−1·7			7	5	6	3	17	19	5	S. 62° W.	N. 66° W.	37	43	103	118	3·53	1·86	Jaipur	East Rajputana, Central India, and Gujarat.
·746	·784	·819	·783		85	70	67	74		5·6	5·3	5·5		9	1	1			4	24	19	4	S. 67° W.		68		143*		4·03	1·35	Udaipur	
·775	·772	·711	·753	−·047	81	64	49	65	−10	7·6	5·5	6·6	−1·4		1				3	35	10	7	S. 64° W.	S. 52° W.	82	75	342	278	4·97	1·55	Deesa	
·808	·858	·877	·848		85	70	68	74		5·6	4·5	5·1							6	31	22	3	S. 61° W.		85		500*		4·81	1·52	Jamnagar	
·641	·667	·665	·658	+·002	99	73	75	84	−5	7·7	6·8	7·3	−1·4						4	29	27	2	S. 65° W.	S. 71° W.	87	89	452	517	3·34	0·81	Belgaum	Deccan.
·672	·659	·606	·646	−·014	94	59	46	63	−6	6·9	8·4	7·7	−0·7		1					18	19	24	N. 84° W.	W	79	81	415*	236	2·12	0·55	Sholapur	
·725	·747	·712	·728	−·025	85	65	53	68	−8	6·8	7·1	7·0	−1·2	3	3					4	17	35	N. 61° W.	N. 67° W.	82	82	185*	200	8·05	2·20	Akola	
·640	·673	·648	·654	−·043	88	69	57	72	−9	6·9	6·8	6·9	−0·9		2				1	6	29	24	N. 75° W.	N. 65° W.	84	76	239*	195	6·24	2·36	Buldana	
·728	·754	·751	·744	−·022	83	68	59	70	−9	6·3	6·7	6·5	−1·1		2	1				8	22	29	N. 70° W.	N. 81° W.	82	84	221	199	5·69	1·80	Khandwa	
·763	·803	·781	·782	−·015	86	70	63	73	−6	6·6	7·8	7·2	−1·4	1	4	1	1		4	9	22	20	N. 78° W	N. 80° W.	68	64	191	191	9·43	3·53	Nagpur	
·783	·835	·834	·817		86	70	66	74		6·1	7·2	6·7		15				7		29		11	S. 53° W		47		43*		10·08	3·24	Do. (Sanitary Commr.'s Office).	
	·743	·781				67	68			6·7	8·1	7·4	+0·6	2				1		1	53	5	N. 88° W.	N. 81° W.	90	84	174*	203	5·06	1·06	Hyderabad (Deccan)	
·853	·904	·891	·883	+·005	88	81	78	82	−5	8·3	7·3	7·8	−1·0				1		1	9	45	6	S. 87° W.	S. 81° W.	89	83	276	376	18·43	4·36	Bombay	West Coast.
·813	·869	·873	·852	+·024	92	81	78	84	−3	5·5	6·2	5·9	−1·3	5						5	29	23	N. 75° W.	N. 87° W.	81	73	88	87	17·56	3·65	Karwar	

§ Mean of 27 days. ‖ Mean of 26 days. * Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L., and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	28·900	28·778	·122	28·853			95·5	72·7	22·8	99·8	68·5	31·3	86·6	89·0	82·3		69·1	73·8	74·2	72·5
	Salem	940	·914	·786	·128	·864	−·029	29·730	91·8	73·5	18·3	98·0	69·0	29·0	83·8	89 0	80·8	+1·0	72·2	76·0	77·5	75·2
	Chitaldroog	2,495	27·449	27·344	·105	27·406	−·003	·708	86·2	69·2	17·0	91·0	67·9	23·1	78·6	82·7	76·9	+3·4	67·0	70·3	71·6	69·6
	Bangalore	3,021	26·881	26·775	·106	26·840	−·004	·722	84·4	67·0	17·4	90·5	64·2	26·3	76·3	81·6	75·0	+2·7	65·5	69·2	70·3	68·3
	Hassan	3,091	·824	·743	·081	·796	−·007	·758	81·0	65·0	16·0	86·0	61·6	24·4	76·5	76·8	72·0	+2·2	64·1	68·9	69·5	67·5
	Mysore	2,518	27·378	27·276	·102	27·327	−·012	·737	86·5	67·0	19·5	92·4	65·1	27·3	78·8	81·8	75·6	+1·9	65·8	69·6	70·1	68·5
	Madras	22	29·776	29·665	·118	29·730	−·013	·680	93·8	77·7	16·1	100·3	72·9	27·4	86·8	88·9	84·2	+0·2		78·4	79·5	78·3
	Bellary	1,475	28·345	28·219	·126	28·291	−·013	·684	94·4	74·9	19·5	98·0	72·2	25·8	83·8	91·8	83·5	+2·7	69·9	72·2	73·6	71·9
	Waltair	226	29·483	29·382	·101	29·433		·597	89·6	79·0	10·6	95·0	79·4	20·1	86·3	85·0	83·2		72·2	78·6	78·7	76·5
Hill Stations, Baluchistan.	Quetta	5,502	24·513	24·421	·092	24·465	+·023		92·8	61·4	31·4	98·5	49·1	49·4	84·7	89·8	76·4	+1·4	54·9	62·1	63·3	60·1
Hill Stations, Northern India.	Leh	11,503	19·689	19·578	·111	19·644	+·023		72·8	46·6	26·2	81·5	37·7	43·8	63·0	70·	58·7	−2·5	41·8	50·7	54·0	48·8
	Srinagar	5,204	24·812	24·727	·085	24·767	+·099		84·1	60·2	23·9	91·8	54·7	37·1	72·2	81·7	71·6	−0·9	58·0	63·3	76·3	67·5
	Kailang	10,087	20·900	20·824	·076	20·864	?		72·6	46·5	26·1	80·8	37·0	43·8	62·9	67·1	57 6	−2·6	45·1	55·0	55·0	51·7
	Simla (Ridge)	7,224	23·061	23·014	·047	23·036	+·034		67·3	58·9	8·4	71·4	53·2	18·2	64·0	64·7	62·6	−0·8	56·7‖	60·7	61·5	59·7
	Chakrata	7,022	·214	·168	·046	·189	+·020		68·1	59·1	9·0	72·2	49·8	22·4	64·6	64·8	62·9	−0·5	58·4	62·4	63·1	61·3
	Ranikhet	6,069	24·013	·950	·063	·967	+·012		73·3	62·7	10·6	78·9	58·6	20·3	69·1	70·4	67·4	+0·6	61·2	65·1	66·1	64·1
	Muktesar	7,600	22·791	22·736	·055	22·764			69·2	57·6	11·6	74·5	53·8	20·7	64·5	65·1	62·4		57·0	61·8	62·9	60·6
	Katmandu	4,388	25·556	25·492	·064	25·527	?		82·9	68·2	14·7	88·0	64·7	23·3	77·2	78 6	74·5	−0·5	66·9	71·0	72·1	70·0
	Darjeeling	7,376	22·955	22·905	·050	22·933	+·001		66·8	57·6	9·2	70·1	55·9	14·2	63·1	65·0	61·8	+1·2	57·6	61·6	62·8	60·7
Hill Stations, Central India.	Mount Abu	3,945	25·899	25·833	·066	25·864	+·003		76·7	65·1	1·6	83·0	63·4	19·6	70·0	75·1	70·5	+3·0	63·5	66·6	67·9	66·0
	Pachmarhi	3,528	26·304	26·227	·077	26·264	+·017		79·8	68·6	11·2	85·3	66·0	19·3	73·1	76·3	72·6	+3·1	66·8	69·3	71·0	69·0
	Chikalda	3,642	·196	·113	·083	·152	+·012		75·9	65·8	10·1	80·8	63·9	16·9	70·2	75·2	69·9	+2·3	61·7	68·3	70·7	67·9
Hill Stations, S. India.	Kodaikanal	7,688	22·805	22·740	·065	22·771			64·2	53·4	10·8	67·5	50·9	16·6	61·0	59·1	57·2		50·6	57·0	56·9	54·4
	Ootacamund		23·029	·970	·059	·999			63·7	52·6	11·1	67·1	49·3	17·8	60·6	59·5	57·1		51·7	56·2	56·8	54·9
Extra India.	Aden	94	29·593	29·463	·130	29·525	−·065	·548	94·8	84·3	10·5	98·7	81·8	16·9	92·0	93·2	89 4	+4·6	75·0	83·6	82·2	80·3
	Perim	201	·527	·408	·119	·465	−·029	·592	98·2	86·3	11·9	102·9	82·6	20·3	94·1	95·1	91·5	+2·4	80·1	83·0	83·5	82·2
	Minicoy	7	·916	·859	·057	·883		·815	86·4			88·4			84·4	83·9				78·4	77·9	
	Zanzibar	73	30·073	·965	·108	30·019	−·035	30·019	82·0	73·6	8·4	84·3	72·1	12·2	77·3	81·3	77·6	+1·3	70·0	73·5†	73·0†	72·2
	Port Victoria (Seychelles).	15	29·974	·902	·072	29·938	−·035	29·878	81·7	72·8	7·9	83·6	69·6	14·0	80·2	80·9	77·6	−0·5	72·1	75·2	75·2	74·2
	Mauritius (Pamplemouses).	181				·968	−·058	30·099				80·3	51·9	28·4			69·4	+1·2				

† Mean of 28 days. ‡ Mean of 26 days. § Mean of 25 days. ‖ Mean of 30 days.

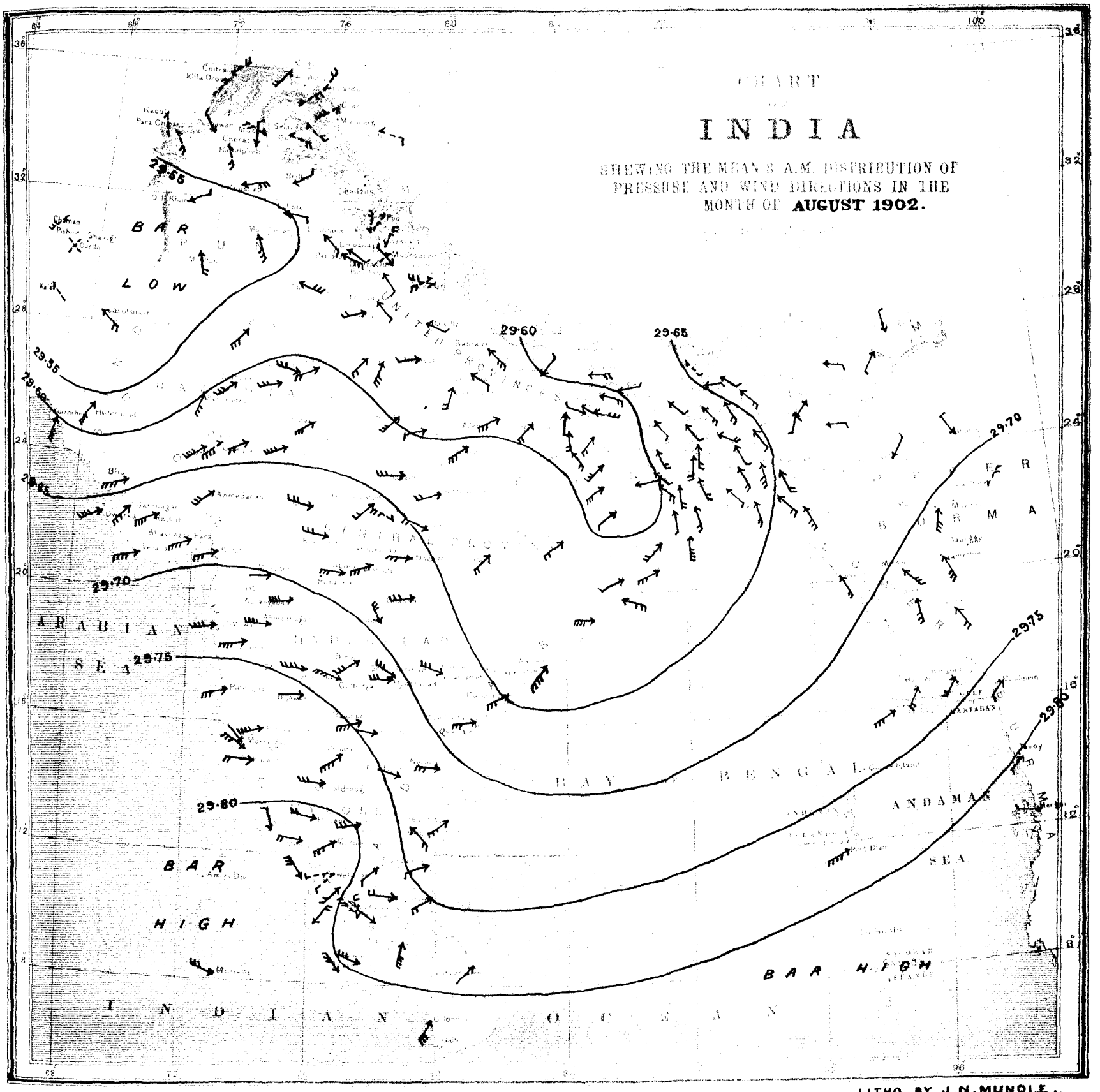
II—*concluded.*

Stations in India, Burma, etc., in August, 1902—concluded.

Vapour Tension.					Humidity.				Cloud.				Wind direction.										Wind steadiness.	Wind velocity.		Rainfall.		Station.	Meteorological Province.
													Number of winds from								Mean wind direction.	Normal mean wind direction of month.							
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.			Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·666	·665	·649	·668		83	53	49	60		4·5	7·2	5·9		7	4	3	3	4	19	10	8	4	S. 26° W.		35		93*		1·57	1·09	Periyakulam	South India.
·772	·797	·796	·788	+·036	94	69	58	74	+ 1	6·5	7·7	7·1	+0·8	15	2	1		1	4	27	10	2	S. 56° W.	S. 57° W.	56	75	46*	93	7·29	1·50	Salem.	
·635	·639	·637	·637	+·017	89	65	57	70	− 6	7·6	8·0	7·8	−0·8							15	33	14	S. 89° W.	S. 83° W.	85	87	205*	259	0·91	0·46	Chitaldroog.	
·613	·632	·609	·618	+·006	92	70	58	73	− 5	7·4	8·3	7·9	+1·3		1				2	22	29	8	S. 78° W.	S. 79° W.	82	90	209*	188	3·13	0·59	Bangalore.	
·590	·622	·640	·617	+·027	95	68	70	78	− 2	7·9	8·5	8·2	−0·6		2					7	33	20	N. 78° W.	N. 87° W.	85	89	77*	106	1·53	0·38	Hassan.	
·524	·611	·593	·609	−·021	94	62	56	71	− 4	9·1	9·4	9·3	+0·8		1					13	37	6	S. 82° W.	S. 84° W.	85	86	228*	333	1·14	0·38	Mysore.	
	·863	·885	·891	+·073		68	65	76	+ 4	6·7	6·8	6·8	+0·2				2	5	5	22	24	4	S. 59° W.	S. 41° W.	69	60	158	166	3·26	2·17	Madras.	
·673	·650	·606	·643	−·015	78	56	41	58	− 5	7·0	7·5	7·3	−0·5		1					7	26	28	N. 73° W.	N. 87° W.	85	87	284*	263	1·13	0·67	Bellary.	
·699	·879	·297	·825		71	70	74	72		7·7	8·1	7·9			2		1	2	4	52	1		S. 41° W.		87		131		7·30	3·75	Waltair.	
·374	·322	·303	·333	−·051	67	27	21	38	− 7	0·4	1·9	1·2	−0·1	35	1			3	3	3	9	8	S. 88° W.	N. 80° W.	24	34	29*	76	0	0	Quetta.	Hill Station, Baluchistan.
·226	·269	·286	·260	−·004	71	46	39	52	+ 4	3·9	4·7	4·3	−0·9			2	1	5	22	21	10	1	S. 27° W.	S. 69° W.	69	39	54	39	0·47	0·29	Leh	
·473	·660	·846	660	+·015	88	82	79	83	+ 6	3·5	3·7	3·6	−0·4	29	5	6		5	6	2	4	5	N. 34° W.	N. 51° W.	3	5	77*	82	1·76	0·62	Srinagar.	Hill Stations, Northern India.
·293	·370	·333	·332	−·023	90	54	50	68	0	6·2	6·9	6·6	+0·1		4	1	1	5	9	6	20	16	S. 88° W.	S. 76° W.	48	63	41	41	0·96	0·25	Kailang.	
·1401	·499	·514	·487	−·041	87‖	83	84	85	− 6	6·9	7·3	7·1	−1·8	15	21	5	3	4	3		1	10	N. 3° E.	N. 32° E.	42	22	108	81	8·68	1·24	Simla (Ridge),	
·487	·544	·565	·532	−·009	96	88	91	92	0	7·5	8·5	8·0	−0·6	11	8		1	11	30	1			S. 15° E.	S. 75° W.	52	46	207	111	11·20	2·32	Chakrata.	
·528	·579	·597	·568	−·004	92	8	80	85	− 3	8·0	8·0	8·0	−0·7	16	1	5	1	3	2	16	12	6	S. 72° W.	S. 58° W.	35	25	92*	50	12·53	4·42	Ranikhet.	
·462	·526	·553	·514		97	87	89	91		7·4	8·2	7·8		1	3	1	2	25	3	8	6	13	S. 2° W.		21		147*		10·24	2·87	Muktesar.	
·648	·694	·718	·687	+·010	94	74	74	81	0	6·9	7·6	7·3	+0·2			7	9	2	1	12	12	19	N. 68° W.	N. 77° W.	32	5	28	18	19·38	6·45	Katmandu.	
·474	·533	·551	·519	+·012	99	92	89	93	− 2	7·6‡	7·0§	7·3	−1·6	6	1	2	2	14	8	16	12	1	S. 22° W.	S. 81° E.	45	26	54*	95	27·20	7·91	Darjeeling.	
·570	·616	·601	·596	−·013	92	85	71	82	− 9	8·3	6·9	7·6	−0·9		3	4		3	9	38	3	2	S. 41° W.	S. 60° W.	66	73	319*	254	13·62	4·87	Mount Abu.	Hill Stations, Central India.
·633	·673	·695	·667	+·008	91	83	77	84	− 6	7·1	6·6	6·9	−1·8	10	3				1	5	18	25	N. 68° W.	N. 84° W.	69	75	253*	206	16·96	5·28	Pachmarhi.	
·599	·671	·699	·656	+·013	94	91	81	89	− 5	7·2	6·7	7·0	−1·9	38							24		N. 45° W.	N. 41° W.	39	74	218*	266	8·11	1·72	Chikalda.	
·342	·426	·443	·398		83	79	88	85		7·2	9·3	8·3		1	6	1	2	10	4	1	5	32	N. 47° W.		42		260		4·01	2·16	Kodaikanal	Hill Stations, S. India.
·376	·410	·436	·407		94	77	85	85		7·1	9·1	8·1		20	2	3	1			11	19	6	N. 89° W.		45		61*		3·37	0·67	Ootacamund.	
·749	1·047	·959	·918	+·133	63	70	61	65	0	3·8	3·3	3·6	+1·8	1	2	4	2	17	17	15	4		S. 4° E.	S. 4° E.	56	70		262	0	0	Aden.	Extra India.
·947	·988	·995	·977	+·173	75	62	60	66	+ 8	0·3	0·7	0·5	−2·1		3	3	8	3		13	5	27	N. 59° W.	N. 49° W.	40	51	264*	333	0	0	Perim.	
	·892	·880				76	76			6·0	5·8	5·9			3					5	21	33	N. 65° W.		85		212*		6·68	1·32	Minicoy.	
·687	·777†	·703†	·722	+·020	83	83†	66†	77	− 1	6·4	5·4	5·9	+1·3		2	4	1	14	20	19	2		S. 3° W.	S. 9° E.	63	76	149*	168	0·61	0·35	Zanzibar.	
·772	·813	·803	·796	+·071	92	78	76	82	+ 7	7·2	6·5	6·9	+0·5	1	1		3	46	8	3			S. 39° E.	S. 36° E.	85	92	292	323	3·75	0·60	Port Victoria (Seychelles).	
			·531	+·019				74	0																		238	293	0·58	0·19	Mauritius (Pamplemousses).	

* Corrected.

G. I. C. P. O—No. 13929 Meteor.—21-1-1903.—385.



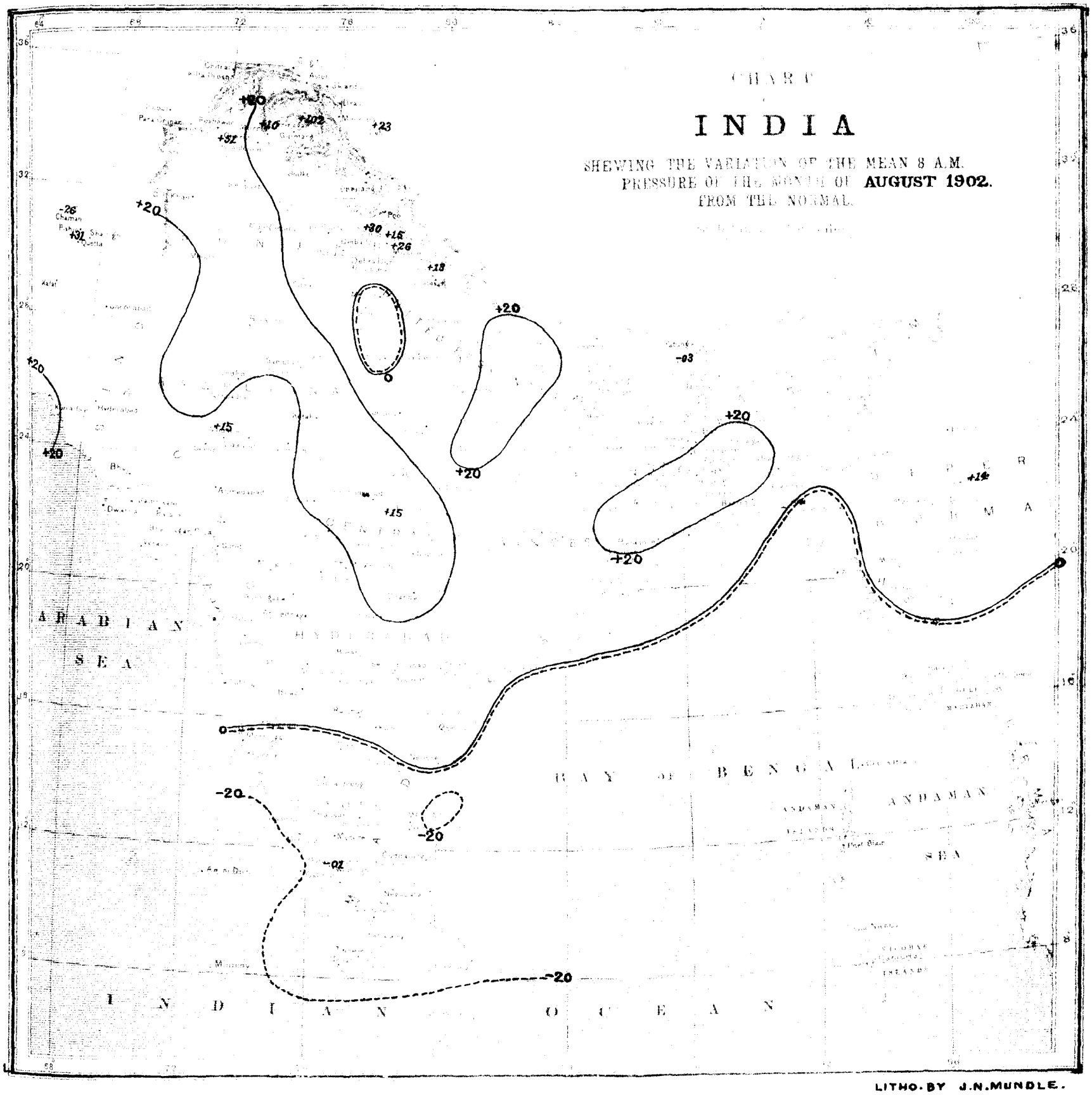
Reg. No. 242, Wr. —May 02—

Explanation.

The lines of the above Chart represent isobars or lines of equal barometric pressure, and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of ·05 inch. The isobars in the Bay of Bengal are filled in by means of the shore observations, and by comparison with the ordinary or normal distribution of pressure as given in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant Meteorological Reporter to the Government of India, and published by the Meteorological Department. Hence they have not the same validity as the isobars in the land area of India itself, but it is probable they deviate very little from the actual.

The mean 8 a.m. wind directions of the month are shewn by means of arrows flying with the wind, and are calculated by means of Lambert's formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0 to 2 miles per hour	one feather added to the wind arrow
,, ,,	2 to 5 ,, ,, ,,	two feathers ,, ,, ,, ,,
,, ,,	5 to 10 ,, ,, ,,	three ,, ,, ,, ,, ,,
,, ,,	10 to 20 ,, ,, ,,	four ,, ,, ,, ,, ,,
	over 20 ,, ,, ,,	five ,, ,, ,, ,, ,,



LITHO. BY J.N.MUNDLE.

Explanation.

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other, one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

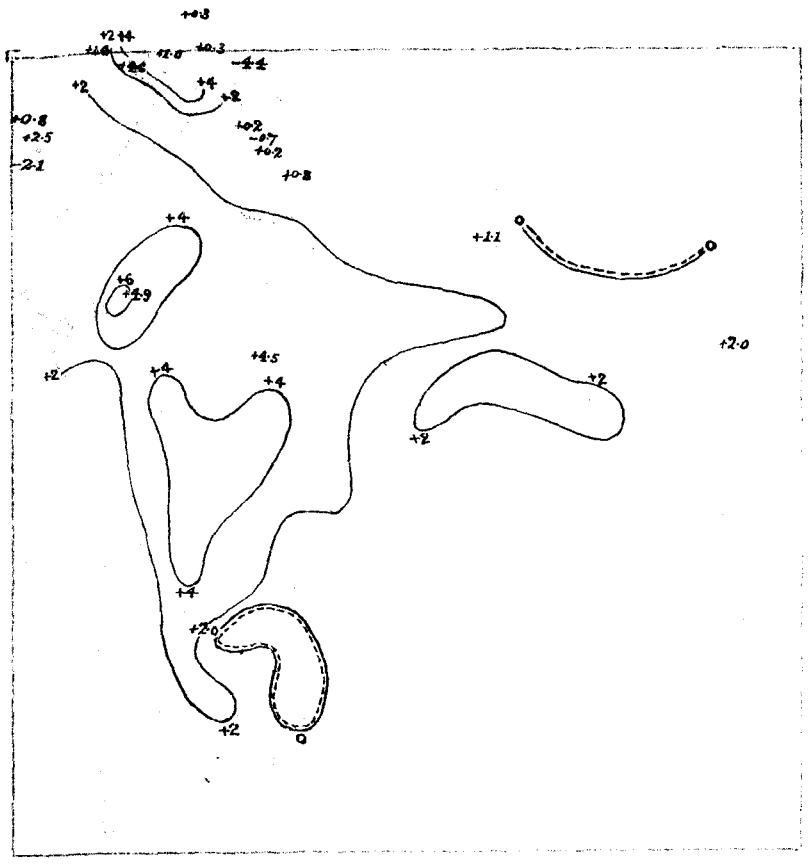
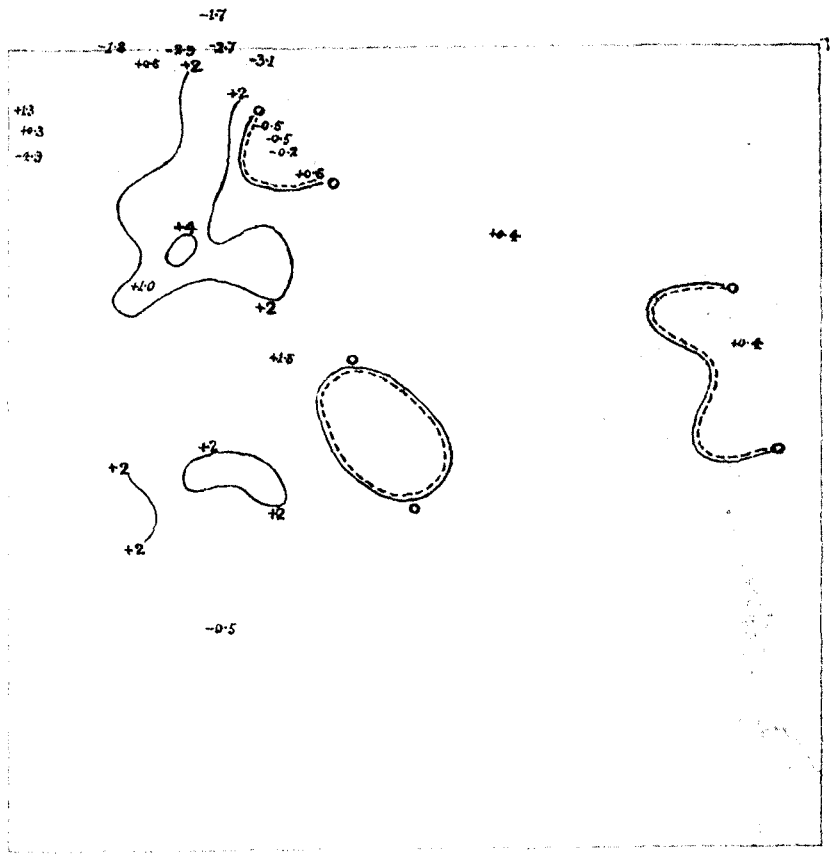


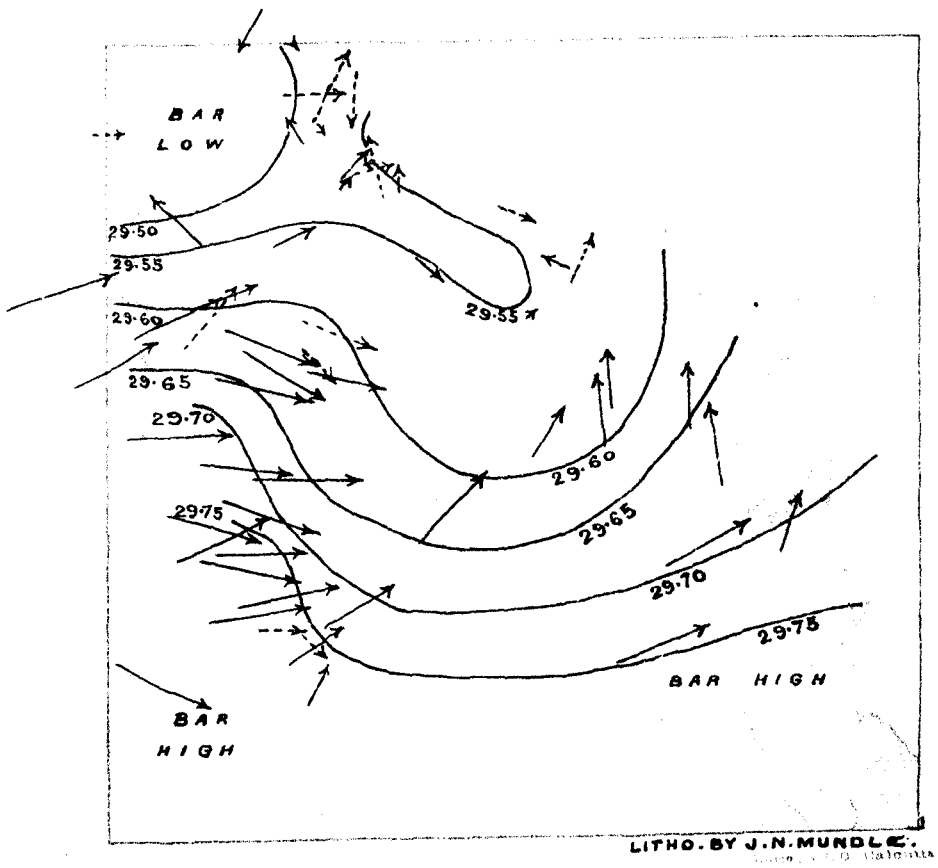
CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Common lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

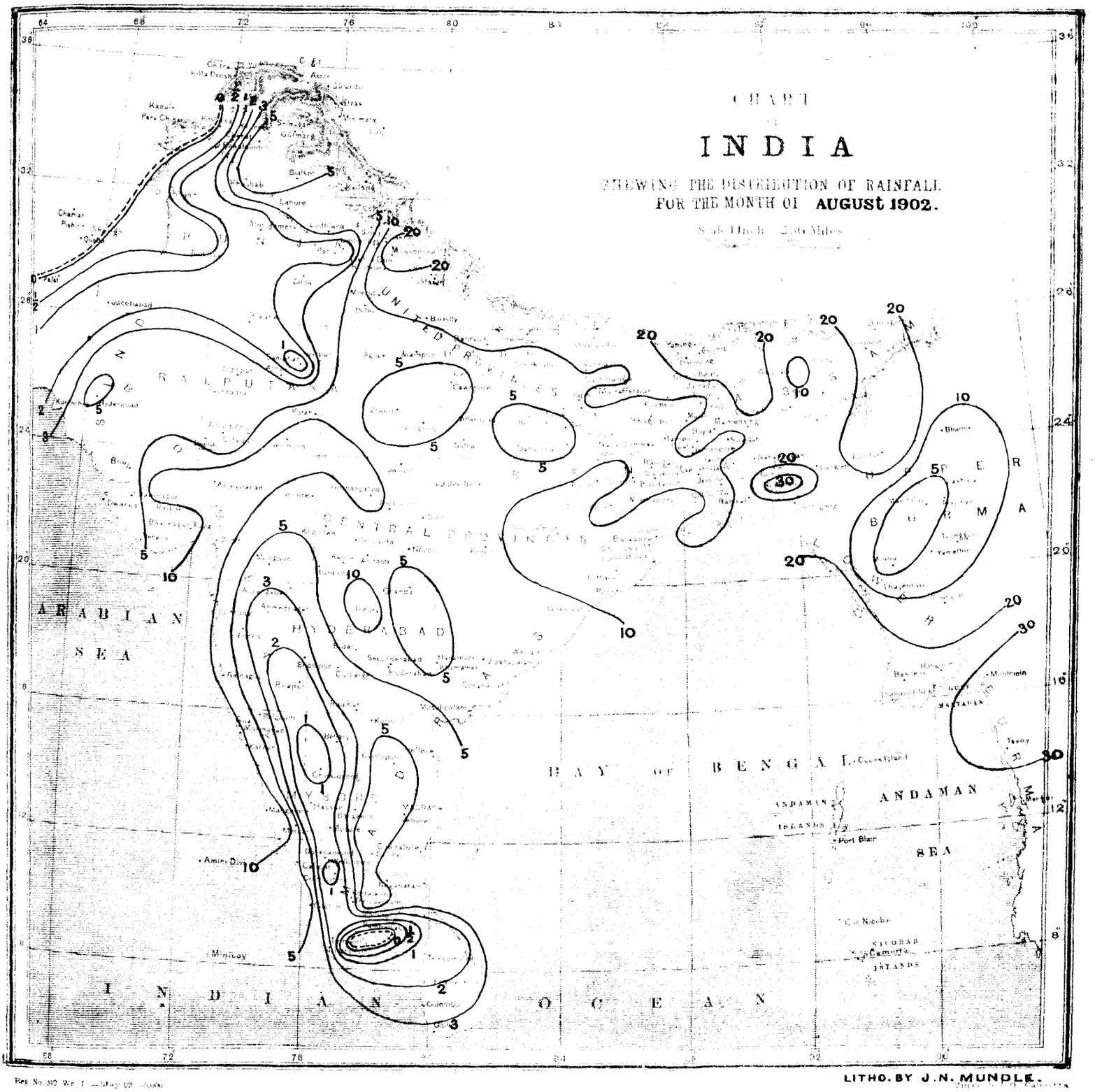
CHART SHEWING THE DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN AUGUST 1902.



LITHO. BY J.N. MUNDLE.

Explanation.

The Chart is prepared in the same manner as the Monthly Charts which previously to 1899 appeared in the Annual Report, the only alteration made being that pressures are reduced to constant gravity (32°). The isobars are given for each two-tenth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{1}{8}$th of an inch being equal to 100 per cent.



LITHO. BY J.N. MUNDLE.

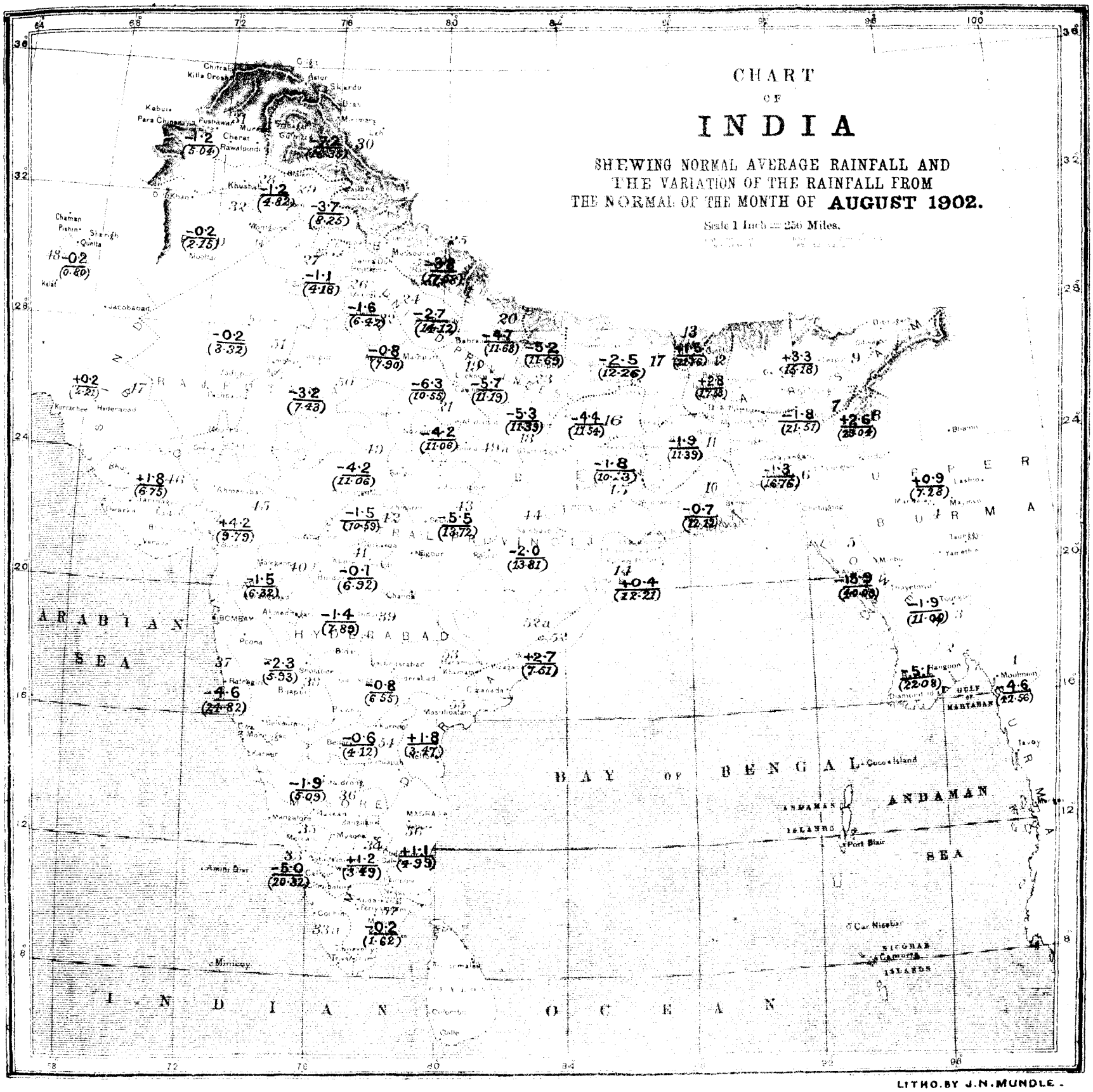
Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India except those at the Hill Stations over 3,500 feet in elevation (177 in number). The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those where it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.

CHART OF INDIA

SHEWING NORMAL AVERAGE RAINFALL AND THE VARIATION OF THE RAINFALL FROM THE NORMAL OF THE MONTH OF **AUGUST 1902.**

Scale 1 Inch = 250 Miles.



LITHO. BY J.N. MUNDLE.

Explanation.

The Chart gives the variations of the rainfall of the month (in inches) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable and useful normals. The country is divided into 57 areas, over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both of the actual and normal for the month) have been calculated, and the numbers given in the centre of each division (usually with a + or − sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The normal average rainfall is also given below in smaller figures enclosed within brackets so that the percentage variation can be at once estimated. The name of the district can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim
2. Lower Burma Deltaic
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. United Provinces, East
19. South Oudh
20. North do.
21. United Provinces, Central
22. do. West
23. do. East Submontane
24. do. West do.
25. do. Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
33a. Travancore
34. Madras, South Central
35. Coorg
36. Mysore
37. Konkan
38. Bombay Deccan
39. Hyderabad, North
40. Khandesh
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
49a. Do. do.
50. Rajputana East, Central India West
51. West Rajputana
52. Madras, East Coast, North
52(a). Do. do. do. (a)
53. Hyderabad South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

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METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

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INTRODUCTION.

THIS review of the weather in India during the month of September 1902 is based on observations taken daily at 8 A.M. at 230 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 63 stations. In the rainfall summary the rainfall data of the meteorological observatories and the rainfall statements of the month, published by the Provincial Governments that had been received up to the date of the publication of the review, are utilized. A summary of the weather in the Bay of Bengal and the Arabian Sea, derived from information extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given.

Summary of the chief features of the weather in India and the Indian monsoon area during the month of September, 1902.

The principal meteorological features of the month of September in normal years are the retreat of the south-west monsoon from Upper India and the occasional occurrence of more or less severe cyclonic storms over the Bay of Bengal. The time of the withdrawal of the monsoon currents from Upper India apparently depends largely on the general strength of the monsoon during the whole period of its prevalence, but usually occurs during the third or fourth week of the month. The withdrawal from Central and Upper India of the Bombay and Bengal branches of the south-west monsoon air currents occurs fairly simultaneously and is followed by fine, dry weather in that region, but Bengal and Burma continue to receive moderate general rain from the Bay current, and the Konkan, Malabar, the Deccan and Southern India from the Arabian Sea current. As mentioned above, the cyclonic storms of this period are sometimes of considerable severity, and give heavy and general rainfall. Their course is, as a rule, west-north-west from the north of the Bay across the Orissa Coast to the central parts of the country, and they are frequently remarkable for their long vitality and for their tendency to recurve in the Central Provinces or Central India from west to north.

The following gives a brief account of the more important features of the meteorology of India during the month :—

During September 1902 the weather was much more unsettled than in the corresponding month of the previous year and more unsettled than usual. A series of storms was developed over the Bay and thence progressed north-westward or north-north-westward into Upper India or West Bengal, and throughout the whole month the weather over the Indian region was more or less under the influence of cyclonic conditions.

Pressure at the commencement of the month was normal or below the normal over the whole of India, but was in some excess in Burma. A cyclonic storm lay over the north-west angle of the Bay, where the barometer read more than one-sixth of an inch below the normal. The storm advanced west-north-westward into the central parts of India and the centre lay near Jubbulpore on the 2nd. It had reached the neighbourhood of Ahmedabad by the morning of the 3rd whence it travelled to the Indus Valley by the morning of the 4th and disappeared on the 5th. It occasioned rain over a large part of the country, but particularly over the tract of country traversed by the centre. The heaviest rainfall connected with the storm was, however, recorded over the Bombay coast, Gujarat and Rajputana on the 3rd and 4th. The storm centre on these days lay over north Bombay and close to the head of the Arabian Sea, so that the indraught to the storm area occasioned a flow of moist air from that sea into the region of ascensional movement within the storm area and very heavy rain resulted. The following are the more important falls of rain reported:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Panch Mahals	Godhra	3rd September	7·79
Kolaba	Matheran	" "	7·65
Ahmedabad	Sanand	" "	7·55
	Dholka	" "	6·26
Kaira	Dakor	" "	6·00
	Mahudha	" "	5·81
Panch Mahals	Kalol	" "	5·51
Surat	Pardi	" "	5·50
Thana	Umbargaon	" "	5·05
	Mokhada	" "	5·00
Bhopal Agency	Bhopal	" "	4·15
Gwalior	Sirdarpore	" "	3·00
Udaipur	Udaipur	" "	2·91
Kaira	Mehmadabad	4th "	9·13
Ahmedabad	Sanand	" "	8·22
Kaira	Matar	" "	6·59
	Kaira	" "	6·18
Hyderabad (Sind)	Naushahro	" "	5·60
Kaira	Nadiad	" "	4·78
Ahmedabad	Ahmedabad	" "	4·62
	Dholka	" "	4·61
Rewah	Ramnagar	" "	4·41
Kathiawar	Vankaner	" "	4·10
	Chanda	" "	4·05
	Rajkot	" "	4·05

Temperature was low across the head of the Peninsula within the region of heavy rain, the area of greatest deficiency of temperature progressing westward with the storm centre. The following gives temperature data along the path of the storm:—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
1st September 1902	Waltair	—5·6
	Masulipatam	—4·6
	Cuttack	—4·1
	Gopalpur	—2·6
	Waltair	—6·0
2nd " "	Cocanada	—3·8
	Masulipatam	—3·6
	Hyderabad (Deccan)	—3·5
	Sholapur	—3·4
	Chanda	—2·5
3rd " "	Khandwa	—3·9
	Chanda	—3·0
	Akola	—2·4
	Amraoti	—1·4
4th " "	Ahmedabad	—7·0
	Rajkot	—7·0
	Bhuj	—5·7
	Surat	—1·8
	Veraval	—4·0
5th " "	Hyderabad (Sind)	—5·0
	Bhuj	—3·5
	Rajkot	—3·0
	Deesa	—2·5

On the 5th a second depression was developing over the norrh-west of the Bay. This storm crossed the coast during the 7th. It was apparently a double storm, one centre advancing into Bengal, where it filled up quickly, while the second centre advanced north-westward up the Gangetic Plain and continued in existence until the 13th. The Bengal centre gave heavy rain to parts of Bengal

on the 8th and 9th, when the following important falls of rain were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Murshidabad	Lalbagh	8th September	5·50
Noakhali	Hatya	" "	5·48
Jessore	Magura	9th "	8·90
Chittagong	Kutubdia	" "	7·96
Jessore	Jhenida	" "	7·32
Gaya	Deo	" "	6·90
Chittagong	Cox's Bazar	" "	6·79
Sonthal Parganas	Naya Dumka	" "	6·64
Sonthal Parganas	Katikund	" "	6·52
Gaya	Aurangabad	" "	6·24
Backergunge	Gaurnadi	" "	5·22
Sonthal Parganas	Nanihat	" "	4·50
Sonthal Parganas	Jamtara	" "	4·32
Sonthal Parganas	Hironpur	" "	4·30

The second centre gave moderate general rain to Upper India throughout its existence and heavy local falls of rain to the United Provinces, principally on the 12th and 13th. The following are some of the more important falls:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Sultanpur	Kadipur	12th Sept.	5·75
Jalaun	Orai	" "	5·14
Azamgarh	Mahul	" "	4·77
Moradabad	Sambhal	" "	4·62
Naini Tal	Kathgodam	" "	4·60
Bahraich	Kaisarganj	" "	4·30
Cawnpore	Cawnpore	" "	4·05
Fatehpur	Ghazipur	" "	4·01
Bahraich	Kaisarganj	13th "	6·25
Saran	Bhoreh	" "	6·00
Bahraich	Bahraich	" "	5·68
Rai Bareli	Salon	" "	5·00
Basti	Haraiya	" "	4·75
Saran	Sripur	" "	4·66
Gorakhpur	Deoria	" "	4·55
Sitapur	Biswan	" "	4·32
Fyzabad	Tonda	" "	4·10

During the existence of this storm temperature was steadily low over North-Eastern and Central India and the Central and United Provinces. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	7th Sept.	8th Sept.	9th Sept.	10th Sept.	11th Sept.	12th Sept.	13th Sept.
	°	°	°	°	°	°	°
Assam	−3·7	−2·3	−2·2	−0·9	−1·0	−0·2	−0·8
Bengal	−0·6	−0·1	−3·1	−2·4	−1·2	+0·9	+0·5
Orissa	−0·6	+0·4	−0·1	+0·7	+0·9	+0·6	+1·6
Bihar	−0·9	−1·7	−0·9	−2·6	−3·0	−1·0	+1·0
Chota Nagpur	+0·6	+0·3	+0·5	−0·7	−1·8	+0·4	+1·7
United Provinces.	−1·6	−2·1	−2·0	−1·6	−1·5	−2·8	−3·3
Central Provinces.	+0·1	−2·0	−2·7	−0·1	+0·4	+0·4	+0·3
Central India	−1·1	−1·3	−1·3	+0·7	−0·8	−0·7	+1·1

During the 14th and 15th the weather was showery over a considerable part of the country, but there was no storm of any importance in existence, and the mean temperature was generally in excess of the normal. The following gives temperature data for all divisions for these two days in illustration:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	14th September.	15th September.
	°	°
Burma	+0·5	+0·4
Assam	−1·6	−1·2
Bengal	+0·5	+0·1
Orissa	+2·0	+1·8
Bihar	−1·8	−0·4
Chota Nagpur	+1·5	+2·4
United Provinces of Agra and Oudh	−2·2	−0·6
N.-W. F. Province and Punjab	−0·7	−2·9
Sind	+2·0	+2·2
Rajputana	+3·5	+3·8
Gujarat	+2·0	+2·1
Central India	+1·7	+1·3
Central Provinces	+1·0	+0·8
Berar	+3·3	+2·3
West Coast	−0·3	+0·2
Bombay Deccan	+2·4	+1·3
Mysore	+2·1	0
Madras Coast	−0·3	+0·6
Madras Deccan	+0·6	+0·1
South India	+0·5	+1·0

On the 16th a considerable disturbance took place in the extreme north-west. A small depression, within which the barometer was falling slightly, lay over the Dera Ismail Khan and Mooltan districts, while pressure was rising rapidly along the foot of the north-west Himalayas. In consequence large pressure differences were established over the North Punjab accompanied with strong winds. Duststorms and thunderstorms occurred over the Punjab and the North-West Himalayas with snow on the higher ranges. This disturbed weather was followed by a rapid fall of temperature and a brisk northerly wind. The changes of temperature over the Punjab plains were very large and the cool wave extended as far a field as Kashgar in the north and Muscat in the south. The following gives comparative temperature data from the 15th to the 18th for various representative stations in the north-west showing the extent and amount of the temperature disturbance:—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
15th September 1902	Khushab	— 7·2
	Sialkot	— 6·6
	Lahore	— 6·6
16th " "	Khushab	— 4·4
	Rawalpindi	— 3·9
17th " "	Sialkot	—12·1
	Rawalpindi	— 9·4
	Khushab	— 9·0
	Dera Ismail Khan	— 8·5
18th " "	Dera Ismail Khan	—12·1
	Jacobabad	— 8·0
	Mooltan	— 7·0
	Montgomery	— 6·8
	Lahore	— 5·6
	Bikaner	— 5·3

The greatest temperature change was observable in the day or maximum temperature and the following gives the largest variations from the normal observed between the 15th and the 18th at the stations in North-West India:—

Date.	Station.	Variation from normal of maximum temperature of date.
		°
15th September 1902	Khushab	—13·9
	Lahore	—13·7
	Sialkot	—10·7
	Montgomery	— 8·0
16th September 1902	Khushab	— 5·8
	Lahore	— 4·7
	Rawalpindi	— 3·1
17th " "	Sialkot	—15·8
	Rawalpindi	—13·0
	Khushab	—12·7
	Dera Ismail Khan	—12·3
	Peshawar	— 8·9
18th " "	Dera Ismail Khan	—18·8
	Jacobabad	—12·6
	Mooltan	—11·6
	Montgomery	—10·8
	Lahore	—10·8

On the 17th a shallow low pressure area was shown over the East Satpuras, and on the 18th another depression was shown developing over and around the Gulf of Cambay. The former depression apparently passed westward and coalescing with the latter formed, by the morning of the 19th, a large shallow depression over the West Satpuras and Gujarat. Thence it travelled slowly northwestward and disappeared over the Indus Valley on the 21st. The storm was accompanied with a good deal of heavy rain, the most important falls having been as follows:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Thana	Dahanu	17th September	12·72
Kolaba	Alibag	" "	7·28
Thana	Umbargaon	" "	7·00
	Bombay	" "	5·85
	Kurla	" "	5·40
Kolaba	Roha	" "	4·39
Thana	Mahim	18th "	5·45
Surat	Bardoli	" "	4·16
Ajmer Merwara	Dawer	" "	3·50
Jaipur	Chatsu	" "	3·01
Dholpur	Garhi Sandra	" "	3·00
Surat	Jalalpur	" "	2·36

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kathiawar	Songad	18th September	2·60
Ahmedabad	Gogha	19th "	3·72
Rewa Kantha	Chhota Udepur	" "	3·63
Jaipur	Chatsu	" "	3·45
Surat	Surat	" "	3·32
Thana	Dahanu	20th "	6·05
Ajmer Merwara	Pisangan	" "	4·65
Thana	Mahim	" "	4·43
Palanpur	Palanpur	" "	4·03
Kotah	Kotah	" "	3·43
Thana	Umbargaon	" "	3·95
Rewa Kantha	Wadasinor	21st "	5·90
Dholpur	Garhi Sandra	" "	4·05
Alwar	Rajgarh	" "	3·87
Dungarpur	Dungarpur	" "	3·75
Ajmer-Merwara	Sawar	" "	3·50

This rainfall occasioned a large depression of temperature over the South Punjab and Rajputana. The following gives data from the 20th to the 22nd in illustration :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	20th September.	21st September.	22nd September.
	°	°	°
Rajputana	−1·4	−5·4	−4·7
South Punjab	+0·1	−5·7	−3·8

The reports of the 21st showed that another storm was developing over the Bay. This storm advanced slowly to the head of the Bay and crossed the coast near Balasore during the early morning of the 25th. It advanced quickly north-north-westward into North Bihar, where it filled up during the 26th. It was a storm of moderate intensity with a barometric depression of more than 0·25″ near the centre. It occasioned moderately heavy general rain in Bengal, the following having been some of the more important amounts :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Manbhum	Chas	25th September	7·15
Muzaffarpur	Mahua	" "	5·82
Murshidabad	Jangipur	" "	4·25
Jessore	Magura	" "	3·82
Murshidabad	Akriganj	" "	3·77
Balasore	Baripada	" "	3·75
Murshidabad	Lalbagh	" "	3·70
Birbhum	Murari	" "	3·69
Manbhum	Jhalda	26th "	8·05
Bhagalpur	Sapaul	" "	7·92
Manbhum	Purulia	" "	7·15
Jalpaiguri	Kalchini	" "	5·74
Monghyr	Jamalpur	" "	5·63
Patna	Barh	" "	5·60
Monghyr	Begusarai	" "	5·51
Darjeeling	Mongpoo	27th "	14·87
	Darjeeling	" "	12·20
	Kalimpong	" "	11·68
	Kurseong	" "	11·45
	Pedong	" "	7·97
Cooch Behar	Cooch Behar	" "	7·77
Jalpaiguri	Bhagatpur	" "	7·12
Cooch Behar	Mickliganj	" "	6·90
	Fulbari	" "	6·60

Temperature was low at this time over practically the whole of Northern and Central India, a condition which continued over this region until the close of the month. Temperature, on the other hand, was normal or slightly above the normal over the southern half of the Peninsula. The following gives data for all divisions from the 25th to the end of the month :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	25th Sept.	26th Sept.	27th Sept.	28th Sept.	29th Sept.	30th Sept.
	°	°	°	°	°	°
Burma	−0·4	−0·2	−0·7	−1·3	−2·3	−2·0
Assam	+1·7	−1·5	−1·4	−1·9	−2·7	−1·4
Bengal	+0·4	−2·6	−0·9	−0·4	−1·1	−0·5
Orissa	−4·8	−2·3	+1·3	+1·2	−0·5	+0·1

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	25th Sept.	26th Sept.	27th Sept.	28th Sept.	29th Sept.	30th Sept.
	°	°	°	°	°	°
Bihar	−0·1	−6·0	−5·4	−2·0	−2·5	−1·5
Chota Nagpur	−0·8	−4·8	−2·1	−2·9	−1·9	−1·6
United Provinces of Agra and Oudh.	−0·9	−1·6	−2·7	−2·7	−2·0	−1·7
Punjab	−1·1	−0·9	−0·5	+0·1	+0·5	+0·8
Sind	−1·1	−0·7	−0·5	−0·6	−0·3	−0·7
Rajputana	−2·1	−2·0	−2·9	−2·1	−2·5	−2·2
Gujarat	−2·1	−2·4	−2·6	−2·3	−2·3	−3·4
Central India	−2·2	−3·0	−4·1	−4·2	−3·6	−3·6
Central Provinces	−1·2	−1·9	−2·1	−2·6	−0·9	−1·9
Berar	+0·6	−0·5	−1·5	−0·1	0	−3·5
West Coast	+0·8	+0·5	−0·1	+0·2	−0·1	−0·1
Bombay Deccan	+0·2	+0·6	+0·8	+1·1	+0·3	−1·9
Mysore	−0·5	−1·7	−0·3	+0·5	0	+0·7
Madras Coast	+0·4	+1·3	+1·3	+1·6	+1·8	+1·4
Madras Deccan	+1·1	+1·3	+0·9	+2·0	−0·1	+0·3
South India	+1·0	+1·8	+0·6	+0·7	+0·7	+1·1

After the filling up of the Bihar storm on the 26th, the weather was quiet and fine over India until the close of the month, but in Tenasserim and Lower Burma heavy rain occurred on the 29th and a depression apparently entered the Bay from the eastward. This depression advanced north-westward through the Andaman Sea, and apparently lay off the Burma coast on the morning of the 30th.

Pressure.—The mean pressure of the Indian land area for the month of September 1902 was ·002″ below the normal. Relatively to this general condition, pressure was in excess over and along the foot of the Himalayas and over Burma, Assam, East Bengal, the Bay area and the east and south of the Peninsula. The excess was greatest over Burma and the east of the Bay (Mergui +·041″, Port Blair +·026″, Mandalay and Kindat each +·038″). Over the whole of the remainder of India, and thence south-westward over Arabia, East Africa and the west Equatorial Belt, the pressure anomalies were negative. Over nearly the whole of this large area the anomalies were generally small and unimportant, but over Gujarat there existed an area within which the negative anomalies were considerable (Ahmedabad—·042″ and Bhavnagar Para —·040″), while locally at Aden the pressure was also in considerable defect. The vertical pressure anomalies were generally small in amount. They were positive over the hills and plains of North-West India and the neighbouring regions, but were negative over the Sikkim-Himalayan region as well as over Central and Southern India.

The following table gives the mean pressure variations and anomalies of the month for the eleven meteorological provinces:—

METEOROLOGICAL PROVINCE.	Variation from normal of mean 8 A.M. pressure of September 1902.	Pressure anomaly, September 1902.
	″	″
Burma Coast and Bay Islands	+·020	+·022
Burma Inland	+·028	+·030
Assam	+·009	+·011
Bengal and Orissa	−·002	0
Gangetic Plain and Chota Nagpur	−·008	−·006
Upper Sub-Himalayas	−·003	−·001
North-West Frontier Province, Indus Valley and North-West Rajputana.	−·013	−·011
East Rajputana, Central India and Gujarat	−·021	−·019
Deccan	−·003	−·001
West Coast	−·003	−·001
South India	+·002	+·004

Temperature.—The weather during the month of September 1902 was somewhat cloudier and more rainy than usual, with the result that, while the day temperature was generally, and on some occasions largely, below the normal, the night temperature was generally in excess of the normal.

The mean maximum or day temperature was generally lower than usual over the greater part of Northern and North-Western India, the west of the Peninsula, the Central Madras coast districts and the interior of Burma. The deficiency in these areas was generally small, but was considerable at Ludhiana (−3°·6) and Bhavnagar (−3°·0), and moderate at Delhi and Ahmedabad (each −2°·6), at Jalpaiguri (−2°·8) and at Nellore (−2°·5). The mean day temperature was in excess elsewhere, but by small amounts, except in the Indus Valley, where Kurrachee showed a variation of +2°·4 and Mooltan of +3°·0. At the hill stations the variations from the normal were irregular.

The mean minimum temperature of the month was in slight defect in several small areas in different parts of the country. These areas covered (1) East and North Bengal and Upper Burma, (2) the east of the United and the Central Provinces and North Madras, and (3) part of Malabar and Ceylon. The deficiency was small and unimportant, except in the east of the Central Provinces, where at Raipur there was a variation of −2°·6. Over the whole of the remainder of the country, with a few local exceptions, the mean night temperature was in excess of the normal. The excess was less than 1°·0 at the great majority of stations, but was somewhat greater in parts of North-West India, where at Sirsa, Kurrachee and Deesa there was a variation of +2°·4 and at Ajmer of +2°·3. At Murree, Leh and Kalat the mean minimum temperature of the month was in slight to considerable deficiency and at Pachmarhi in slight excess, but at the remaining hill stations the variations from the normal were unimportant.

The mean temperature of the month exceeded the normal over the interior of the Peninsula, a large part of North-West India and around the coasts of the Bay, but, except at Kurrachee and Mooltan, the variations were

generally unimportant. Over the remainder of India the mean temperature was in defect. The largest variations, which were only between —1°·0 and —1°·5, were reported from North Bengal and locally from Lucknow, Delhi, Ludhiana, Ahmedabad, Bhavnagar, Nellore, Waltair and Calicut. The variations of the mean temperature at the hill stations were generally irregular, but on the outer ranges of the Himalayas and at Kalat the mean temperature was generally lower than usual.

The following table gives variation data for the eleven meteorological provinces :—

Meteorological Province.	Variations of actual from normal of		
	Mean maximum temperature, September 1902.	Mean minimum temperature, September 1902.	Mean daily temperature, September 1902.
	°	°	°
Burma Coast and Bay Islands	+0·1	+0·6	+0·4
Burma Inland	—1·4	0	—0·7
Assam	—1·0	—0·1	—0·5
Bengal and Orissa	—0·1	+0·4	+0·2
Gangetic Plain and Chota Nagpur	—0·9	+0·2	—0·4
Upper Sub-Himalayas	—1·1	+0·6	—0·3
North-West Frontier Province, Indus Valley and North-West Rajputana.	+0·2	+0·9	+0·6
East Rajputana, Central India and Gujarat.	—1·3	+0·8	—0·2
Deccan	—0·1	+0·5	+0·2
West Coast	—0·4	+0·3	—0·1
South India	—0·1	+0·5	+0·2

Winds.—The winds were more westerly than usual over the south of the Bay, while in the north they were approximately normal in direction. On the Burma coast—and more particularly at Rangoon—the direction was unusually easterly, accompanying local pressure peculiarities. The winds were unusually southerly near the hills in Northern India, but over the plains of Northern India as well as at most of the hill stations there was generally increased westing in the wind's direction. Over the Peninsula the direction was about the average.

Humidity.—One of the most noteworthy features of the meteorology of the month was the general increased dampness of the air. The amount of vapour present in the air was greater than usual over practically the whole country, the only exceptions having been at the stations of Quetta, Peshawar and Simla. The relative humidity was less generally in excess. In three areas, *viz*, in Burma and Bengal, in the Deccan and in the Indus Valley, the mean temperature of the month was in greater or less excess, and in these three areas the mean humidity of the month was in defect of the normal. This deficiency was slightly more marked in Lower Bengal (Calcutta and Saugor Island each—3) than in other parts of the country. Over the remainder of India the mean relative humidity was in excess of the normal. The excess was greatest and amounted to 5 or more over the Southern Punjab and North-West Rajputana on the one hand and over parts of Madras and Mysore on the other. At the hill stations in Kashmir the excess of relative humidity was likewise considerable.

The following table gives variation data of the mean aqueous vapour pressure and mean humidity of nine meteorological provinces:—

Meteorological Province.	Mean absolute humidity.		Mean relative humidity.	
	Average actual, September 1902.	Variation of actual from normal, September 1902.	Average actual, September 1902.	Variation of actual from normal, September 1902.
	"	"	%	
Burma Coast and Bay Islands	·895	+·010	87	—1
Bengal and Orissa	·955	+·014	84	—2
Gangetic Plain and Chota Nagpur.	·884	+·026	83	+1
Upper Sub-Himalayas	·765	+.026	72	+3
Nort-West Frontier Province, Indus Valley and North-West Rajputana.	·741	+·025	64	—2
East Rajputana, Central India and Gujarat.	·761	+·058	68	+3
Deccan	·729	+·024	77	+1
West Coast	·854	+·013	86	0
South India	·693	+·037	75	+3

Cloud.—The amount of cloud was normal or in slight defect over the Bay Islands and the Burma coast. It was likewise in slight to moderate defect within a large area which covered Lower Sind, Gujarat, the Bombay coast, a large part of the Deccan and North Madras. Within this area of deficiency the variations were somewhat larger than in the Burma area, and at Kurrachee amounted to —1·5 and at Bellary to—1·1. Over the remainder of India the cloud amount was greater than usual. The excess was more than 1·0 within two areas, the first was bounded on the east by Allahabad, on the west by Jaipur and on the south by Khandwa, the second included South Mysore and the adjacent districts of Madras. The greatest actual excess was 1·7 at Allahabad. At most of the hill stations, except those in Kashmir and Sikkim, the cloud amount was in excess of the average.

The following table gives mean variation data of cloud amount of nine meteorological provinces : —

Meteorological Province.	Mean cloud amount.	
	Average actual, September 1902.	Variation of actual from normal, September 1902.
Burma Coast and Bay Islands	7·2	—0·3
Bengal and Orissa	7·6	+0·5
Gangetic Plain and Chota Nagpur	7·2	+1·0
Upper Sub-Himalayas	3·7	+0·4
North-West Frontier Province, Indus Valley and North-West Rajputana.	1·8	—0·3
East Rajputana, Central India and Gujarat	4·7	+0·3
Deccan	7·2	+0·4
West Coast	6·6	0
South India	7·4	+0·4

Rainfall.—The general rainfall of the month was in excess of the normal. There were five cyclonic storms during the month, and most of these, though only of slight or moderate intensity, were long-lived and travelled over a large extent of country, so that the weather over India was almost constantly under the influence of one of these depressions, and was hence, almost daily, rainy and unsettled. The chief periods of rainfall were the 1st to the 14th, when general rain fell, except in parts of Upper India and of Madras; the 15th to the 17th, when rain fell over the Punjab and rain and snow over the North-West Himalayas; the 18th to the 21st, when rain fell over north Bombay, Gujarat and Rajputana; the 22nd to the 26th, when heavy rain fell in North-East India and Burma; and the 28th to the 30th, when rain fell over Lower Burma Rain was received in all divisions of India. The average total amount for the month was less than 1″ in the West Punjab and the Baluchistan Hills and thence increased in all directions and was heaviest (41″) in the Bengal Hills. The rainfall was in defect of the normal in (1) parts of Assam, (2) the west of the United Provinces and the east of the Punjab, (3) the central portions of the country and the Deccan, and (4) South Madras, and was generally in excess elsewhere. The greatest relative excess occurred in the extreme north-west in Sind and Baluchistan, while the greatest actual excess was reported from the Bengal Hills, North Bengal and Malabar.

The following table gives comparative rainfall data of the eleven meteorological provinces or divisions:—

Meteorological Province.	Rainfall.			
	Mean actual for September 1902.	Mean normal for September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands .	23·43	21·08	+2·32*	+11
Burma Inland	8·60	7·77	+0·83	+11
Assam	17·04	13·50	+6·35*	+47
Bengal and Orissa . . .	14·69	11·33	+3·36	+30
Gangetic Plain and Chota Nagpur	12·34	7·22	+5·12	+71
Upper Sub-Himalayas . .	4·71	4·49	+0·12*	+ 3
North-West Frontier Province, Indus Valley and North-West Rajputana.	1·42	0·76	+0·66	+87
East Rajputana, Central India and Gujarat.	6·97	4·36	+2·86*	+66
Deccan	7·74	7·57	+0·24*	+ 3
West Coast	22·60	9·20	+13·40	+146
South India	4·47	4·89	−0·42	− 9

* A reference to Table I will show that the means in columns 2 and 3 are derived from a smaller number of stations than the mean in the 1st column. The sum of the figures in columns 2 and 3, therefore, will not agree with the figures in column 1.

In the preceding summary the general meteorological changes over India only have been dealt with. In the following paragraphs some account is given of the changes obtaining outside India, *viz.*, over the sea areas to the south, over Arabia, over Persia and over the adjacent regions of Central Asia. It has long been recognised, and the fact has frequently been noticed in these Reviews, that while most of the meteorological phenomena over the Indian region can be ascribed to or accounted for by what may be described as local causes, such as cyclones and local storms, there are, at intervals, firstly, large, abrupt and general alterations, particularly of barometric pressure which can only be accounted for on the assumption that changes occasionally occur affecting a much larger area than the Indian region due to general actions operative over a very wide area, and, secondly, that changes occasionally occur within the Indian region due to local causes, but to causes which have their main action outside the Indian region. The following summarises, briefly, the more important actions which affected meteorological conditions over the Indian monsoon area during the month under review.

On the 7th and 8th there was a rapid fall of the barometer in West Siberia, which apparently affected pressure as far south as Chitral and Gilgit. The weather was, however, at the time, undisturbed in Further Kashmir, except for strong winds at some stations. On the 9th a recovery commenced and the barometer over West Siberia rose irregularly until the 18th, when another general fall occurred. This fall was not apparently felt in the mountain regions surrounding the north-west of India, as at Kashgar, Chitral and Gilgit the barometer was rising on the 18th and on the 19th was only falling by small amounts. Towards the close of the month there were very rapid barometric changes in West Siberia, but these were not reproduced in the records of the observatories in the Hindu Kush and Kashgar. In the Trans-Caucasian district, represented by the station of Tiflis, there was a rapid fall of the barometer on the 4th, a change which was seemingly reproduced in the records of the Persian and Arabian stations, where, however, the change was much less than at Tiflis. On the 24th an even larger barometric fall occurred at Tiflis, but the pressure changes in Persia and Arabia on that and the succeeding days were small and unimportant. Over the Equatorial regions and the seas to the south of India the daily changes were of course much smaller than in higher latitudes, but they were more regular. At the Seychelles and Zanzibar the barometer rose slowly but steadily from the 3rd to the 7th, and on the 3rd, 5th and 6th this change apparently extended over the south of the Indian region. From the 8th to the 16th the movement of pressure was generally downward over the Equatorial Belt and the south of India, while from the 17th to the 20th the changes were irregular. Between the 21st and the 26th the general tendency over the same area was downward. On the 27th a rise commenced, which continued till the end of the month and was general over the whole area.

The daily variations of pressure from the normal were more general and consistent than the daily changes. In the Trans-Caucasian district and thence as far east as Tashkent pressure was in excess of the normal throughout the month. Further to the northward in Western Siberia pressure ruled below the normal from the 1st to the 11th and above from the 11th to the 30th, while further to the southward in Persia and Arabia pressure ruled below the normal from the 1st to the 10th, above the normal from the 11th to the 21st, and generally below the normal again from the 22nd to the end of the month. At Aden pres-

sure was lower than usual throughout the month. Over India pressure was generally below the normal from the 1st to the 3rd, above on the 4th and 5th, below from the 6th to the 9th, about normal or above from the 10th to the 20th, below from the 21st to the 26th, and generally above from the 27th to the end of the month, while in the Equatorial Belt pressure was lower than usual from the 1st to the 3rd, higher than usual from the 4th to the 13th and below from the 14th to the end of the month.

Summarising these results, and dealing with them generally and roughly, it would appear that pressure was below the normal over the Equatorial Belt from the 1st to the 3rd, and over India and the Persian and Arabian region from the 1st to the 10th. An excess of pressure appeared over the Equatorial regions on the 4th and lasted till the 13th. Over India, Persia and Arabia an exeess of pressure appeared on the 11th and lasted till the 20th or 21st. Lower pressures appeared over the Equatorial Belt on the 14th, and in that area the barometer remained low till the end of the month. Lower pressures than the normal appeared over India on the 21st and over Persia and Arabia on the 22nd. In the latter area, *i.e.*, over Persia and Arabia, the barometer continued relatively low (irregularly) till the close of the month, and in the former area, *i.e.*, over India, owing to local actions, only till the 26th, when the low pressures were succeeded by excessive pressures. There thus appear to have been general actions influencing the pressure conditions over the whole of this large area. To the north of India and Persia, along a band which included Tiflis, Baku and Tashkent, pressure was steadily in excess throughout the month, and this band appears to have divided the Indian monsoon area from the Central Asian area. In the latter area pressure was fairly steadily in defect from the 1st to the 11th and fairly steadily in excess from the 12th to the 30th. It would thus appear that, while some general agreement may be traced between the conditions over India, Persia and Arabia and the seas to the southward, there exists little or no agreement between conditions in Central Asia and the monsoon area, a result which would naturally be anticipated at this season of the year.

It is interesting to note that at least on one occasion during the month there occurred with one or two doubtful exceptions, a practically simultaneous fall of the barometer over the whole area, extending from Egypt in the west to Burma in the east, and from Siberia to the Equator and beyond to Zanzibar. The fall exhibited its maximum effect in Western Siberia, but the change would appear to have been too wide-spread and too general to have been caused merely by the development of a depression over that area.

The local changes and storms over India were, as shown in the section on barometric depressions, considerable and very frequent so that it is difficult to correlate the weather changes over India with the general but small pressure variations described above. It may, however, be mentioned that over the Arabian Sea the winds were generally stronger when the pressure variations were in excess over the Equatorial Belt and weaker when the variations were in defect, though the periods of the two elements were very far from exactly corresponding.

According to a report received from the Director of the Kodaikanal observatory, there was a well-marked outburst of sunspots during September. The spots appeared as follows:—

September 13th and 14th.—A small and short lived spot.

September 18th to 25th.—A group of two fairly large spots.

September 21st.—A spot of little importance which had disappeared by the 26th, when only some faculae were left to indicate its position.

September 22nd.—On the morning of this day a group of spots appeared coming round the east limb of the sun. The group remained visible, throughout its course, across the disc of the sun, though it had very much broken up and nearly filled up before it disappeared on October 3rd. A small spot was also seen on this day near the south-east limb of the sun.

October 5th.—A group of two fairly large spots appeared close to the east limb.

There were no special features about the spots to call for any remark, but the outburst was much the most important display since work began at the observatory, and probably indicates that the prolonged minimum is now well past.

Capt. Tandy, R.E., of the Survey of India, has forwarded an account of the weather, etc., observed at camp Khabar, South Arabia, in Lat. 13° 42′ N. and Long. 44° 44′ E., and at a height of 4,795 feet. The observations show that there occurred a sudden rise of the barometer about the 18th of the month, corresponding with a change in the weather. From the 1st to the 15th the weather had been unsettled, rain falling as follows:—

September 3rd	0·28″
,, 4th	0·02″
,, 6th	0·15″
,, 7th	0·02″
,, 9th	1·40″

The rain apparently fell during storms which passed from east to west to the northward of the station, while the winds at camp Kahar varied between south-east and north-west, occasionally blowing strongly. After the 15th the wind fell light, generally from east or south, the weather improved and no rain fell, so that monsoon conditions apparently ceased in South Arabia in the middle of the month of September.

Atmospheric Pressure.

The mean pressure of the Indian land area for September 1902 was 0·002″ lower than usual, so that the condition of pressure which has characterised this month for several years past has now disappeared. The following shows the general pressure anomaly of the Indian land area for the months of September from 1890 to 1902 :—

YEARS.	Pressure anomaly.
September 1896	+0·021
„ 1897	+0·024
„ 1898	+0·002
„ 1899	+0·038
„ 1900	+0·028
„ 1901	+0·045
„ 1902	−0·002

Pressure was, relatively to the general condition, in excess or the pressure anomalies were positive along the foot of the Himalayas, over Assam and East Bengal, over Burma, over the Bay area and over the east and south of the Peninsula. The positive anomalies were small and unimportant, except in parts of Burma and the Bay Islands, and exceeded 0·025″ at the following stations only :—

STATION.	Variation from normal of mean 8 A.M. pressure of September 1902.	Pressure anomaly, September 1902.
	″	″
Mergui	+·039	+·041
Kindat	+·036	+·038
Mandalay	+·036	+·038
Thayetmyo	+·034	+·034
Toungoo	+·030	+·032
Bhamo	+·030	+·032
Port Blair	+·024	+·026

Over the whole of the remainder of India, which included North-Western India, except the submontane regions, the South Gangetic Plain, Lower Bengal and the west of the Peninsula, pressure was, relatively to the general condition, in defect. Over nearly the whole of this large area the negative pressure anomalies were generally small, but over Gujarat there was shown an area within which the anomalies were larger and exceeded 0·020″. The following gives data for the stations within this area :—

STATION.	Variation from normal of mean 8 A.M. pressure of September 1902.	Pressure anomaly, September 1902.
	″	″
Ahmedabad	−·044	−·042
Bhavnagar Para	−·042	−·040
Deesa	−·030	−·028
Veraval	−·027	−·025
Malegaon	−·024	−·022

The anomalous distribution of pressure in September 1902 was thus almost the opposite of that prevailing in September 1901, and the rainfall of the two months was in marked contrast, having been much heavier during the month under review than in the corresponding month of last year. The following gives comparative data illustrating this difference :—

AREAS.	STATION.	Pressure anomaly in September 1901.	STATION.	Pressure anomaly in September 1902.
LARGEST POSITIVE PRESSURE ANOMALIES.	Amraoti	″ +·048	Mergui	″ +·041
	Indore	+·043	Kindat	+·038
	Khandwa	+·042	Mandalay	+·038
	Akola	+·040	Thayetmyo	+·034
	Rajkot	+·035	Toungoo	+·032
	Veraval	+·035	Bhamo	+·032
	Surat	+·034		
	Seoni	+·034		
	Malegaon	+·033		
	Bhavnagar Para	+·033		
LARGEST NEGATIVE PRESSURE ANOMALIES.	Colombo	−·044	Ahmedabad	−·042
	Salem	−·042	Bhavnagar Para	−·040
	Negapatam	−·041	Deesa	−·028
	Calicut	−·038	Veraval	−·025
	Trivandrum	−·036	Malegaon	−·022
	Jessore	−·030		
	Berhampore	−·029		

The above shows that a portion at least of the area of largest positive pressure anomalies in September 1901 was included in the area of largest negative pressure anomalies in September 1902.

The variations of the mean pressure of the month from the normal at the hill stations were generally small, with the doubtful exceptions of Srinagar and Darjeeling. At all the north-western hill stations, with the exception of Chaman, where the variation is also doubtful, the mean pressure of the month was in excess of the normal, while the pressure on the neighbouring plains was in defect; hence the vertical pressure anomalies in this area were slightly positive. The following gives data for six pairs of stations :—

HILL STATION.	Variation from normal pressure, September 1902.	PLAIN STATION.	Variation from normal pressure, September 1902.	Vertical pressure anomaly (Hill—Plain).
	″		″	″
Leh	+·012	Lahore	−·002	+·014
Quetta	+·003	Jacobabad	−·017	+·020
Murree	+·002	Peshawar	−·012	+·014
Simla	+·009	Ludhiana	−·003	+·012
Chakrata	+·003	Meerut	−·015	+·018
Ranikhet	+·007	Bareilly	−·001	+·008

In north-eastern, central and southern India, on the contrary, the mean pressure of the month at the hill stations was in defect of the normal, and in some cases by amounts greater than those at the neighbouring plains stations, so that in these cases the vertical pressure anomalies were generally negative. The following gives data for four pairs of stations :—

Hill Station.	Variation from normal pressure, September 1902.	Plain Station.	Variation from normal pressure, September 1902.	Vertical pressure anomally (Hill—Plain).
Darjeeling . .	−″025	Dhubri . .	+″006	−″032
Mount Abu . .	−·019	Deesa . .	−·030	+·011
Pachmarhi . .	−·007	Seoni . .	+·003	−·010
Wellington . .	−·004	Coimbatore .	+·009	−·013

In Extra India the pressure variations were generally small. At Aden there was a moderate deficiency, while at Perim there was a trifling excess, so that it is doubtful if the pressure observations in this area are wholly reliable. In Equatorial regions (Zanzibar and Seychelles) pressure was practically normal, though with a feeble tendency to lower pressures than usual. To the north-west of India in Baluchistan, Afghanistan, etc., the pressure variations were apparently small, but apparently pressure in these regions participated in the slight excess which prevailed over the north-west Himalayas and neighbouring hill regions.

The principal anomalous features in the pressure distribution of the month over the whole monsoon area were hence an excess of pressure in the east, including Burma and probably the countries to the eastward, and a deficiency of pressure in the west (excepting the hill regions) and south-west, the deficiency extending as far as Arabia, East Africa and the west Equatorial regions.

Barometric depressions and cyclonic storms of the month.

There were four major periods of disturbance over the Indian region during the month under review, during which more or less important storms affected the weather. These periods were from the 1st to the 5th; the 6th to the 13th; the 18th to the 21st; and the 22nd to the 26th. On the 28th a fresh depression was apparently developing over the Bay, but the history of this storm belongs to the month of October.

Cyclonic storm of the 1st to the 6th.—At the commencement of the month a storm, which had already begun to develop over the Bay during the last days of August, lay close to the north-west angle of the Bay. Pressure on the 1st had fallen briskly in Orissa, Chota Nagpur, Bihar, the east of the United Provinces and the Central Provinces, while it had risen in Burma. Pressure was in defect of the normal over nearly the whole Indian region, the largest deficiency reported having been 0·182″ at False Point.

Over the Bay from Lat. 8° N. to Lat. 16° N. the wind was south-south-westerly and south-westerly, blowing with a force between 4 and 7 with generally rainy and cloudy weather and squalls in some places. To the north of Lat. 16° N. the direction of the wind drew more into south and off the Arakan coast and the Bengal coast into south-east and east. The force of the wind in this area was lower than at places to the southward and generally varied between 1 and 6. The mean force of the wind for the whole Bay was 4·6, which was 0·9 above the normal. The centre of the storm lay apparently close to the *Purulia* in Lat. 20° 33′ N. and Long. 88° 52′ E. and about 150 miles to the south-east of Balasore. The following gives marine data for this day :—

Name of Vessel.	8 A.M. position.		Barometer, as corrected by Calcutta office.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
R.I.M.S. *Clive* .	12° 30′	85° 40′	29·745	SW	6	Moderate S.W. sea and fine.
S.S. *Booldana* .	13 48	90 01	·753	SW by S	4	Moderate sea and cloudy.
S.S. *Kum Sang*	13 50	93 41	29·833	SW	4	Rainy.
S.S. *Glengyle* .	15 00	85 35	·661	SW	6	High following sea and heavy rain. 4 P.M., heavy rain squalls.
S.S. *Shahjehan*	15 42	90 41	·683	SW	7	Heavy sea. Noon, squally and showery.
S.S. *Assyria* .	15 48	86 07	·672	WSW	6	High S. W. sea and squally.
S.S. *Malda* .	Rangoon .		·759	...	...	4 P.M. squally.
S.S. *Loodiana* .	19 10	90 22	·526	SSW	4	Occasional light rain. Noon, occasional rain squalls.
S.S. *Pentakota* .	19 36	89 47	·449	SW by S.	6	Heavy sea and frequent squalls with rain.
S.S. *Shahsada*	20 0	91 51	·585	S by W	6	High sea and frequent heavy rain squalls.
S.S. *Adana* .	20 03	87 38	·481	Var.	2	Cloudy.
S.S. *Purulia* .	20 31	88 52	·450	S	4	Moderate sea and cloudy. 4 A.M., squally.
S.S. *Commilla* .	20 51	90 07	·473	S	5	High sea and showery. Noon, squalls of wind and rain.
S.S. *Kapurthala*	21 26	92 04	·564	SSE	6	Heavy sea and heavy rain.
S.S. *Nerbudda* .	River Hooghly.		·560	E	4	Squally. 4 A.M., some rain.
S.S. *Islanda* .	„	„	·479	ESE	1	Cloudy. Midnight squally.
S.S. *Okara* .	Near Hooghly Point.		·499	E by S	2	Cloudy.
S.S. *Purnea* .	Near Calcutta .		·506	...	...	Noon, occasional rain squalls.

The position over the Indian land area has been described above. The storm was only of feeble intensity and

the winds and rainfall in the storm area were both light. The following gives 8 A.M. data for the storm area:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND Direction at 8 A.M.	WIND Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches	
Akyab	29·706	+·062	—·033	SSE	5	10	1·61	Showery.
Chittagong	·642	+·016	—·073	SE	10	6	...	
Jessore	·576	—·020	—·096	ESE	6	9	0·12	
Barisal	·582	+·004	—·087	ESE	5	9	1·10	
Calcutta	·521	—·064	—·138	ENE	8	8	0·07	
Burdwan	·546	—·046	—·122	NE	6	8	0·09	Showery.
Chaibassa	·513	—·074	—·121	NE	2	8	1·42	"
Saugor Island	·484	—·076	—·166	ESE	12	10	0·49	Sea slight.
Balasore	·493	—·070	—·152	Calm	3	7	1·49	Drizzling rain.
False Point	·472	—·070	—·182	NW	8	10	1·43	Do.
Cuttack	·507	—·048	—·138	W	1	10	1·89	Showery.
Gopalpur	·526	—·028	—·122	WSW	6	10	0·28	Drizzling rain.
Sambalpur	·569	—·051	—·095	SW	2	10	1·46	Showery.

September 2nd.—On the 2nd the storm had passed inland and the winds over the Bay had fallen lighter, the average force having been only 4·2, compared with 4·6 on the 1st. The wind's direction was south-westerly over the greater part of the Bay, drawing into south-south-east and south-east at the head of the Bay. The following gives marine data for the Bay to the north of Lat. 16° N.—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer as corrected by Calcutta Office.	WIND Direction.	WIND Force.	WEATHER.
	° ′	° ′	"			
S.S. *Pentakota*	16 39	93 05	29·728	SW	4	Slight sea and continuous rain.
S.S. *Shahsada*	17 10	93 12	·767	SSW	5	High sea and showery.
S.S. *Purnea*	19 01	90 34	·720	SW	5	Passing showers. Noon, occasional rain squalls.
S.S. *Shahjehan*	19 06	88 57	·633	SSW	6	High sea. 4 A.M., light rain squalls.
S.S. *Glengyle*	19 09	87 21	·636	SSW	5	Rough confused sea and cloudy.
S.S. *Assyria*	19 21	87 35	·702	SSW	5	High S. W. sea and cloudy.
S.S. *Islanda*	20 27	87 58	·589	SSW	5	Heavy S. S. W. sea and squally. Midnight, heavy squalls.
S.S. *Loodiana*	Eastern Channel		·582	S	4	Fine.
S.S. *Okara*	Intermediate		·679	...	...	Noon, light rain squalls.
S.S. *Kapurthala*	Chittagong		·698	...	...	4 P.M., cloudy.
S.S. *Chanda*	Calcutta		·504	...	...	Noon, overcast.

The cyclonic storm had crossed the North Orissa coast during the 1st, advancing in a west-north-westerly direction, and at 8 A. M. on the 2nd the centre lay about 100 miles to the east of Jubbulpore. It was a shallow disturbance and the greatest depression of the barometer was 0·149" at Jubbulpore. The winds were moderate in force and there was no heavy rainfall in the neighbourhood of the storm centre. The following gives 8 A.M. data for the storm area:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND Direction at 8 A.M.	WIND Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches	
Saugor Island	29·619	+·135	—·033	S	19	7	0·04	Showery.
Balasore	·600	+·107	—·048	S	4	2	0·56	
False Point	·605	+·133	—·051	SW	11	7	0·86	Showery.
Hazaribagh	·560	—·011	—·093	SSE	15	10	0·83	Drizzling rain.
Ranchi	·582	+·021	—·072	SSE	11	10	1·76	Showery.
Chaibassa	·570	+·057	—·064	SSE	2	4	0·90	Showery.
Sambalpur	·583	+·014	—·081	WSW	4	8	0·27	Showery.
Raipur	·557	—·012	—·104	SW	5	4	0·43	Showery.
Chanda	·601	—·014	—·094	WSW	11	10	1·75	Continuous rain.
Seoni	·550	—·047	—·126	WNW	3	7	1·58	"
Jubbulpore	·510	—·072	—·149?	NNE	4	10	0·10	Raining.
Sutna	·546	—·065	—·098	ENE	5	10	0·22	
Hoshangabad	·588	—·047	—·114	SW	2	10	0·94	Raining.
Saugor	·566	—·057	—·101	NNE	7	10	0·28	
Nowgong	·562	—·046	—·085	NNE	2	10	0·17	Showery.
Allahabad	·577	—·037	—·058	E	9	10	0·73	
Benares	·564	—·024	—·067	E	5	10	...	

September 3rd.—On the morning of this day the centre of the storm lay close to Ahmedabad. The storm had thus advanced westward with considerable rapidity, the average rate per hour having been 21 miles. The storm was also more intense than on the previous day, for while the depression of the barometer at Jubbulpore on the 2nd was 0·149", at Ahmedabad on the 3rd it was 0·207". The winds were strong in Gujarat and a fairly well-marked cyclonic circulation obtained around the storm

centre. The following gives 8 A.M. data for the storm area:—

STATION.	PRESSURE. 8 A.M. reduced to sea level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches.	
Indore	29·594	—·015	—·106	S	4	10	1·81	Continuous rain.
Neemuch	·575	—·037	—·119	ESE	7	8	0·44	Showery
Kotah	·555	—·064	...	SE	6	7	0·73	"
Udaipur	·562	—·053	...	NNE	3	10	2·93	Continuous rain.
Deesa	·564	—·046	—·145	NW	8	10	1·89	"
Ahmedabad	·522	—·083	—·207	NNW	4	10	4·31	"
Surat	·606	—·016	—·136	WSW	6	9	0·10	
Bhavnagar Para.	·599	—·031	—·160	W	10	10	0·48	Thunder.
Veraval	·626	—·021	—·113	WNW	15	10	0·41	Showery.
Dwarka	·634	—·026	...	WNW	12	10	0·08	Sea falling.
Bhuj	·610	—·024	—·086	NW	4	10	0·97	Raining.
Rajkot	·611	—·023	—·115	W	12	10	2·59	Continuous rain.

With the increase in the intensity of the storm the rainfall had become heavy and the following large amounts were recorded over Gujarat and the adjacent districts of the Central Indian plateau:—

DISTRICT.	Station.	Rainfall during 24 hours preceding 8 A.M. of 3rd September 1902.
		Inches.
Panch Mahals	Godhra	7·79
Ahmedabad	Sanand	7·55
Do.	Dholka	6·26
Kaira	Dakor	6·00
Do.	Mahudha	5·81
Panch Mahals	Kalol	5·51
Surat	Pardi	5·50
Bhopal Agency	Bhopal	4·15
Gwalior	Sirdarpur	3·00
Udaipur	Udaipur	2·91
Partabgarh	Partabgarh	2·30
Bhopal Agency	Sehore	2·30

September 4th.—The cyclonic storm had advanced in a north-westerly direction and was passing through Sind at 8 A.M., where it had coalesced with the permanent low pressure area of that region. It had no well-defined centre, and the amount of the barometric depression at Hyderabad was only 0·082". The following gives 8 A.M. data for the storm area:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches	
Jacobabad	29·522	—·028	—·073	ENE	5	5	...	
Hyderabad	·543	+·008	—·082	W	8	9	3·47	Continuous rain.
Kurrachee	·610	+·010	—·065	W	12	10	1·20	
Bhuj	·640	+·030	—·060	SW	20	8	2·14	Continuous rain.
Dwarka	·630	—·004	...	WSW	22	10	2·40	Sea rough.
Deesa	·643	+·079	—·072	S	17	10	3·00	Raining.
Ahmedabad	·673	+·151	—·058	SW	6	9	4·87	Continuous rain.
Rajkot	·664	+·053	—·066	SW	17	9	3·84	"

The most important feature in the general conditions on this day was the deep and strong flow of air from the north-west angle of the Arabian Sea into Gujarat and Rajputana. This current carried much moisture into the interior of the north-west dry area and gave rain from the coast, inland as far north as Jaipur. The following were the principal amounts recorded:—

DISTRICT.	Station.	Rainfall during 24 hours preceding 8 A.M. of 4th September 1902.
		Inches.
Kaira	Mehmadabad	9·13
Ahmedabad	Sanand	8·22
Kaira	Matar	6·59
Do.	Kaira	6·18
Hyderabad (Sind)	Naushahro	5·60
Kaira	Nadiad	4·78
Ahmedabad	Ahmedabad	4·62
Do.	Dholka	4·61
Rewah	Ramnagar	4·41
Kathiawar	Vankaner	4·10
Do.	Chanda	4·05
Do.	Rajkot	4·03
Rewah	Umaria	2·71
Bhopal Agency	Sironj	2·62
Sirohi	Mount Abu	2·55
Rewah	Sohagpur	2·50

September 5th.—The storm had recurved in its path and travelling north-north-eastward had advanced as a shallow residual disturbance into the central Punjab. The barometer had hence risen briskly over North Bombay and Southern Rajputana, while it had fallen over the Punjab. The following gives 8 A.M. data for the storm area:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	"	"	"				Inch.	
Khushab .	29·613	—·018	—·001	NE	10	4	...	
Sialkot .	·623	—·034	—·007	NW	1	0	0·16	
Lahore .	·598	—·071	—·019	Calm	2	3	...	
Ludhiana .	·615	—·035	—·022	Calm	2	3	0·05	Showery.
Montgomery	·596	—·016	—·012	NE	11	6	...	
Sirsa .	·617	—·014	—·007	WSW	5	8	...	

The indraught of winds from the north of the Arabian Sea into Gujarat and Rajputana had slackened and become more irregular with the advance of the storm northwards, but the flow of moist air still held to a certain extent and the following considerable falls of rain were recorded at 8 A.M.:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 5th September, 1902.
		Inches.
Larkhana	Sehwan	4·07
Kurrachee	Kurrachee	3·02
Rewah	Bardi	2·91
Kaira	Mehmadabad . . .	2·31
Do.	Kaira	2·04
Bundelkhand . . .	Shahugar	2·02

During the day the storm probably filled up or it disappeared under the large general decrease of pressure which took place over the whole country between the 5th and 6th.

Cyclonic storm of the 6th to the 13th.—On the 3rd the wind shifted to the westward and north-westward over the Andaman Sea and neighbouring coast districts, with a briskly falling barometer and heavy rain in places. These changes apparently marked the passage of a cyclonic area from Further India into the Indian region. On the 4th the barometer was falling all over the north of the Bay and a disturbance was developing off the Burma coast. The following gives marine data for this day:—

Name of Vessel.	8 A.M. position. Lat. N.	8 A.M. position. Long. E.	Barometer as corrected by Calcutta Office.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	"			
S.S. *Colaba* .	8 15	87 10	29·817	SW by S	6	Overcast. 4 A.M., occasional very heavy squalls.
S.S. *Rajah* .	8 22	81 59*	·855	SW	5	Rough sea and fine; midnight, lightning to south.
S.S. *Katoria* .	11 23	89 03	...	SSW	2	Continuous rain.
S.S. *Darius* .	13 02	85 13	·789	SW	4	Moderate sea and overcast. 4 P.M., heavy rain squalls.
S.S. *Ismaila* .	13 27	92 06	·696	W ›W	5	Moderate high sea and cloudy. Midnight, heavy rain squalls.
S S *Islanda* .	15 12	85 47	·784	SW	5	Moderate sea and overcast. 4 P.M., heavy rain.
S.S. *City of Sparta.*	15 22	85 44	·710	WSW	5	Moderate sea and cloudy. 4 P.M., thick heavy rain.
S.S. *Kistna* .	16 02	94 03	·707	W	2	Slight swell and cloudy. 4 A.M., occasional squalls.
S.S. *Kohinur* .	Cocanada.		·736	...	...	Midnight considerable rain.
S.S. *Okara* .	17 06	84 33	·699	W	6	Moderate sea and overcast. 4 A.M., occasional rain squalls.
S.S. *Maharaja* .	17 10	92 15	·614	NW	3	Moderate sea and cloudy. 4 A.M., squally with rain.
S.S. *Chanda* .	17 11	92 14	·747	SE	2	Slight swell and occasional rain.
S.S. *Stolsenfels* .	18 31	85 49	·651	SW	4	.....

* Noon position.

The above shows that the area of disturbance lay near the *Maharaja*, on board which vessel the wind was north-westerly and the weather squally and rainy.

September 5th.—The storm over the Bay had advanced in a north-west by west direction towards the head of the Bay. The following gives marine data for this day:—

Name of Vessel.	8 A.M. position. Lat. N.	8 A.M. position. Long. E.	Barometer as corrected by Calcutta Office.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	"			
S.S. *Den of Seaton*	11 26	83 58	...	WSW	6	Threatening squalls.
S.S. *Ismaila* .	12 01	90 04	29·705	SW	6	Squally with rain. 4 A.M., heavy squalls of wind and rain.
S.S. *Islanda* .	12 39	84 37	·703	SW	6	High sea and continuous squalls.
S.S. *Katoria* .	13 51	92 45	...	SW	4	Fine. 8 P.M., occasional rain.
S.S. *Argus* .	14 55	92 48	·715	SW	4	Squally with rain.
S.S. *Okara* .	14 55	82 33	·669	W	6	Moderately high sea and heavy rain squalls.
S.S. *Darius* .	15 55	86 06	·669	W	4	Moderate sea and light rain. 4 A.M., heavy rain squalls.

Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer as corrected by Calcutta Office.	Wind Direction.	Force.	Weather.
	° ′	° ′	″			
S.S. *Kohinur* .	Vizaga	patam.	29·636	...	...	Midnight, rainy.
S.S. *Kistna* .	Kyauk	Phyou.	·751	...	...	4 A.M., fine.
S.S. *City of Sparta.*	19 33	87 35	·670	E	2	Sea smooth and fine. 4 P.M., showery.
S.S. *Maharani* .	19 51	89 27	·605	SE	4	Moderate sea and fine. Midnight, squally.
S.S. *Maharaja* .	19 55	89 11	·594	E	2	
S.S. *Commilla* .	20 04	92 32	·692	S	4	
S.S. *Lawada* .	Near Calcutta.		·685	...	...	Noon, heavy rain squalls.

The above shows a very complete cyclonic circulation of the winds over the Bay. The direction was westerly and south-westerly over the south and centre of the Bay, southerly on the south Burma coast and south-easterly to easterly over the head of the Bay to the north of Lat. 19° N. The centre of the storm, which at this time was a very feeble and diffused depression, lay apparently near the vessels *City of Sparta*, *Maharani* and *Maharaja*, and apparently in about Lat. 19° N. and Long. 89° E. The weather was moderately fine over the region of easterly winds, but the *Darius* in Lat. 15° 55′ N. and Long. 86° 6′ E. and the *Okara* in Lat. 14° 55′ N. and Long 82° 33′ E. in the region of westerly winds reported rainy, squally weather.

There were no changes of any importance to record over the Indian land area on this day, but the barometer was falling briskly at Waltair and Gopalpur. The following gives 8 A.M. data for the stations around the head of the Bay :—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Wind Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	″	″	″				Inches	
Masulipatam	29·725	—·037	+·013	WNW	11	10	0·56	Drizzling rain.
Cocanada .	·667	—·038	—·032	WSW	8	10	0·04	Sea rising.
Waltair .	·642	—·065	—·040	SW	10	10	0·45	Sea smooth.
Gopalpur .	·606	—·064	—·052	NNW	7	1	0.15	Sea slight.
Cuttack .	·628	—·030	—·024	Calm	1	6	0·02	
False Point	·629	—·034	—·031	E	8	8	...	Wind variable.
Balasore .	·626	—·040	—·029	Calm	1	3	0·11	
Saugor Island .	·636	—·035	—·022	ESE	8	8	0·15	Thunderstorm.
Calcutta .	·650	—·036	—·018	SE	3	9	0·14	
Barisal .	·681	+·004	—·003	Calm	2	10	0·29	
Chittagong	·700	+·002	—·024	ENE	3	2	1·98	Showery.
Akyab .	·715	+·010	—·027	SE	3	6	0·38	

September 6th.—The storm over the Bay had apparently continued to progress north-westward, but the advance had been extremely slow. The centre seemingly lay close to the *Lawada*, which vessel was in Lat. 95° 59′ N. and Long. 89° 37′ E. with a south-by-east strong wind, so that the centre of the storm lay apparently in Lat. 20° N. and Long. 89° E., and had thus been nearly stationary during the previous 24 hours. Rain was falling over the north-west of the Bay and a very complete cyclonic circulation of the winds was shown over the Bay. The following gives marine data for this day :—

Name of Vessel.	8 A.M. Position. Lat. N.	Long. E.	Barometer as corrected by Calcutta Office.	Wind Direction.	Force.	Weather.
	° ′	° ′	″			
S.S. *Okara* . .	12 01	82 16	29·719	W	6	High sea and overcast. 4 A.M., heavy rain and wind squalls.
S.S. *Den of Seaton.*	13 48	85 08	...	W	6	High beam sea.
S.S. *Muttra* . .	15 26	94 28	·729	SW	6	Moderate sea and overcast. 4 A.M., frequent squalls and heavy rain.
S.S. *Goa* . .	15 36	95 19	·699	SSW	5	High sea and overcast. 4 P.M., occasional heavy squalls.
S.S. *Katoria* . .	16 00	96 10	...	SW	4	Cloudy. Noon, hazy.
S.S. *Commilla* .	17 40	93 38	·677	S	4	High head sea and occasional rain squalls.
S.S. *Argus* .	17 42	90 53	·595	S	4	Fine. 4 P.M., cloudy.
S.S. *Maharani* .	17 54	91 55	·647	S	5	Rough sea and slight squalls.
S.S. *Kohinur* .	18 50	85 17	·493	Var	1 to 4	Swell and thick rain.
S.S. *Darius* .	19 24	87 36	·629	E	2	Showery.
S.S. *Lawada* . .	19 59	89 37	·550	S by E	6	Strong sea and cloudy. 8 P.M., passing squalls.
F.L.V. *Torch*. .	Ridge Sandheads		·570	SE	*3	Passing rain squalls.

* Velocity.

The changes over the land area had been considerable. Pressure had increased slightly over Burma, but had fallen almost everywhere else. The fall exceeded 0·100″ at Cuttack, False Point and Saugor Island, and the barometer read about 0·130″ below the normal at these stations

The following gives 8 A.M. data for the storm area on this day :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Gopalpur .	29·550	—·056	—·110	NNW	10	8	0·28	
Cuttack .	·528	—·100	—·126	ENE	1	7	0·23	
False Point .	·526	—·103	—·137	NW	5	9	...	
Balasore .	·548	—·078	—·109	NE	2	6	0·66	
Saugor Island	·531	—·106	—·130	E	9	10	0·11	Sea slight.
Calcutta .	·572	—·078	—·099	ENE	3	10	0·19	Drizzling rain.
Barisal .	.590	—·091	—·097	SE	3	10	0·31	

The above shows a fairly well-marked cyclonic circulation of the winds around the Bay. Moderately heavy rain was falling over west Bengal in the line of advance of the storm area.

September 7th.—The storm had again been almost stationary, though, as on the previous day, there had been a very trifling advance north-westward. The following gives marine data for this day :—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer as corrected by Calcutta Office.	WIND. Direction.	WIND. Force.	WEATHER.
	° ′	° ′	"			
S.S. *Ito'a* . .	13 13	84 40	29·663	SW	2	Fine. 4 A.M., cloudy.
S.S. *Wardha* . .	13 45	85 09	·693	SSW	4	Moderate following sea and fine. 4 A.M., occasional rain squalls.
S.S. *Goa* . .	17 09	92 20	·618	SW	5	High sea and heavy squalls. Midnight, heavy squalls of wind and rain.
S.S. *Lawada* . .	17 30	92 25	·700	SW	5	Frequent squalls.
S.S. *Muttra* . .	18 04	91 28	·628	SW	5	High sea and frequent hard squalls. Noon, thick rain and violent squalls.
S.S. *Nizam* . .	18 52	85 11*	·538	WSW	5	Heavy swell and heavy rain.
S.S. *Argus* . .	20 16	88 37	·475	SW	2	Heavy rain. Noon, passing rain squalls.
S.S. *Kohinur* . .	20 25	87 41	...	W	3	Swell and rainy.
S.S. *Kistna* . .	Akyab		·618	...	...	8 P.M., occasional rain squalls.
S.S. *Kaburthala* .	Near Calcutta.		·488	...	...	8 P.M., slight rain.
S.S. *Pundua* . .	Do.		·511	..	...	4 P.M., cloudy.
F.L.V. *Torch* .	Ridge Sandheads.		·539	N	2	Squally.

* Noon position. † Velocity.

The preceding data show that the storm centre lay in Lat. 20° 20′ N. and Long. 88° E., and that the storm had intensified during the previous 24 hours. The centre lay apparently over the *Argus* in Lat. 20° 16′ N. and Long. 88° 37′ E., the F.L.V. *Torch* at the Ridge Sandheads and the *Kohinur* in Lat. 20° 25′ N. and Long. 87° 41′ E. The storm passed over the F.L.V. *Torch* during the day, where the wind shifted from north in the morning to west-south-west in the afternoon, but the weather was only unsettled and squally, showing that the storm was at no time severe. Moderate to strong south-westerly winds prevailed over the greater part of the Bay, but in the north, within the storm area, the wind was light and variable. The mean force of the wind over the Bay was 3·8 which was only 0·1 above the normal.

The following gives 8 A.M. data for the stations around the head of the Bay :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches	
Gopalpur .	29·542	—·008	—·120	WSW	14	8	1·19	Sea rough.
Cuttack .	·516	—·012	—·139	W	1	7	0·03	
False Point	·512	—·014	—·152	NW	7	8	0·28	Thunder.
Balasore .	·510	—·038	—·149	NW	1	4	0·44	
Saugor Island	·480	—·051	—·183	ENE	9	8	0·10	Showery.
Calcutta .	·491	—·081	—·182	E	4	8	0·11	
Barisal .	·515	—·075	—·176	SSE	4	6	1·47	
Chittagong .	·577	—·059	—·150	SSE	12	8	0·07	Showery.
Akyab .	·629	—·043	—·115	S	7	10	0·77	

The above shows a general slight to brisk fall of the barometer around the Bay and a deficiency of pressure of over 0·180″ at Calcutta and Saugor Island. The winds were cyclonic in direction, but not strong, and moderate rain had fallen over parts of Bengal.

September 8th.—The depression had passed inland. The storm was apparently compound, having one centre over Lower Bengal, about 50 miles to the north of Calcutta,

and a second centre in Chota Nagpur near Hazaribagh. The following gives 8 A.M. data for the storm area:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches	
False Point	29·541	+·029	—·125	WNW	9	9	0·03	Thunder.
Balasore	·488	—·022	—·175	Calm	3	7	0·21	
Saugor Island.	·472	—·008	—·193	W	15	10	3·30	Thunder-storm.
Calcutta	·469	—·022	—·206	WSW	3	10	0·96	Showery.
Barisal	·502	—·013	—·193	WNW	5	10	1·44	Do.
Jessore	·477	—·036	—·209	Calm	2	10	0·17	
Burdwan	·466	—·049	—·213	N	3	10	0·12	
Berhampore	·481	—·054	—·201	NE	4	10	4·64	Thunder-storm.
Chaibassa	·486	—·026	—·165	Calm	1	8	0·65	Showery.
Ranchi	·488	—·028	—·166	S	4	10	...	
Hazaribagh	·482	—·038	·177	Calm	6	10	0·29	Thunder.
Gaya	·491	—·028	—·166	E	4	7	0·13	Showery.

The above shows that the barometer continued to mark about one fifth of an inch below the normal near the storm centres, but the storm was not severe and the accompanying rainfall was not generally heavy.

September 9th.—The barometer had risen all over northern India. The storm centre over Lower Bengal had filled up while that over Chota Nagpur had become much slighter. The winds were irregular and generally light. The following gives 8 A.M. data for the storm area:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches	
Saugor Island.	29·589	+·117	—·077	S	16	10	3·10	Sea slight.
Calcutta	·602	+·133	—·075	SSE	3	10	1·21	Showery.
Burdwan	·594	+·128	—·087	Calm	2	10	1·15	
Chaibassa	·583	+·097	—·072	Calm	1	9	0·02	
Ranchi	·576	+·088	—·091	Calm	2	10	1·79	Showery.
Hazaribagh	·586	+·104	—·081	Calm	4	10	0·24	Drizzling rain.
Gaya	·575	+·084	—·088	NE	5	9	0·19	Showery.
Benares	·580	+·068	—·077	Calm	2	10	0·97	
Allahabad	·597	+·066	—·062	E	2	9	0·97	Thunder.
Lucknow	·588	+·064	—·069	NNE	1	10	0·66	Showery.
Cawnpore	·587	+·063	—·059	Calm	1	10	1·21	Do.
Sutna	·607	+·060	—·061	W	4	10	2·15	Continuous rain.
Sambalpore	·611	+·064	—·067	W	7	10	0·17	Drizzling rain.

September 10th.—The shallow storm had advanced westward from Chota Nagpur into the Central India plateau and had continued to fill up. The following gives 8 A.M. data for the storm area:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches	
Jubbulpore	29·658	+·029	—·032	SSW	4	10	0·04	
Saugor	·679	+·017	—·020	W	5	8	0·15	
Nowgong	·643	+·033	—·032	Calm	1	10	0·36	Showery.
Cawnpore	·653	+·066	+·002	NNE	3	10	1·31	Do.
Allahabad	·650	+·053	—·013	WNW	4	10	0·03	Thunder-storm.
Lucknow	·661	+·073	—·001	E	2	8	0·45	Showery.
Benares	·644	+·064	—·018	SE	3	10	0·49	Drizzling rain.
Sutna	·638	+·031	—·028	Calm	2	10	0·04	

The above shows that the storm was very slight and of no practical importance.

September 11th.—The shallow depression had drifted slowly in a north-westerly direction and was central between Nowgong and Agra. The following gives 8 A.M. data for the storm area:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 35°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches	
Saugor	29·690	+·011	—·012	W	5	7	0·23	
Nowgong	·643	0	—·035	S	1	10	1·07	Continuous rain.
Sutna	·683	+·045	+·011	WNW	2	8	1·25	Do.
Allahabad	·691	+·041	+·026	E	5	10	0·80	Showery.
Lucknow	·691	+·030	+·022	E	6	10	1·15	Do.
Cawnpore	·666	+·013	+·009	ESE	7	10	0·62	Do.
Mainpuri	·647	—·029	—·017	E	3	10	0·09	
Agra	·551	—·025	—·028	NE	5	10	0·52	

The only important feature about the storm was the flow of moist air from the Bay in the rear of the centre, a flow which determined heavy rain to several places in

West Bengal and the United Provinces. The following are the more important examples:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 11th September 1902.
		Inches.
Cawnpore	Bhognipore	10·48
Hamirpur	Hamirpur	8·50
Cawnpore	Derapur	8·00
Patna	Patna	7·93
Jalaun	Kalpi	5·41
Cawnpore	Akbarpur	5·06
Etawah	Auraiya	5·02
Azamgarh	Mahul	4·45
Etawah	Bidhuna	4·01
Saran	Basantpur	3·23
Muzaffarpur	Hajipur	3·09

September 12th and 13th.—During these days the storm which continued very slight and unimportant, remained stationary over the United Provinces, occasioning a feeble indraught of winds towards the centre and occasioning much heavy rain over the Gangetic Plain. The following were the more important examples of this rainfall:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Darbhanga	Tajpur	12th September	5·93
Sultanpur	Kadipur	" "	5·75
Jalaun	Orai	" "	5·14
Azamgarh	Mahul	" "	4·77
Moradabad	Sambhal	" "	4·62
Naini Tal	Kathgodam	" "	4·60
Bahraich	Kaisarganj	" "	4·30
Cawnpore	Cawnpore	" "	4·05
Fatehpur	Ghazipur	" "	4·01
Bahraich	Kaisarganj	13th "	6·25
Saran	Bhoreh	" "	6·00
Bahraich	Baharaich	" "	5·68
Rai Bareli	Salon	" "	5·00
Basti	Harbiya	" "	4·75
Saran	Sripur	" "	4·66
Gorakhpur	Deoria	" "	4·55
Sitapur	Biswan	" "	4·32
Fyzabad	Tanda	" "	4·10

During the 14th and 15th the weather over India was comparatively undisturbed. Pressure was above the normal in most places but was relatively low over Northern India and high over Malabar, Ceylon and the south of the Bay. Westerly winds prevailed over the Peninsula, southerly and south-easterly winds in Burma and Bengal, and south-easterly winds over northern India. There was a good deal of sporadic rainfall reported, the amounts having been large in several parts of the country. On the 16th a considerable disturbance of pressure took place over the north Punjab and the adjacent hill districts. Showers of rain and snow had occurred among the hills and pressure had risen rapidly at Peshawar, while it had fallen slightly within allow pressure area overlying Dera Ismail Khan and Mooltan, changes which produced very large pressure differences over the north Punjab and occasioned much disturbance in the air circulation over the extreme north-west of India. On the following day, the 17th, the barometric rise which had commenced at Peshawar on the 16th, had extended over the Punjab and the shallow depression had filled up. The weather had been very disturbed over the extreme north-west, and numerous duststorms and thunderstorms had occurred over upper India, while fresh, heavy snow had fallen among the hills. During these two days there was no important change over the Peninsula and north-east India. On the 18th the disturbed conditions in the north-west had disappeared and pressure was very uniform over the land area and was above the normal, except over the west and centre of the Peninsula. Over the Bay pressure was apparently lower than in surrounding regions, and there were indications of a cyclonic storm over the west of the Bay. The depression over the Bay never developed and conditions were quiet over the Bay up to the 21st.

Shallow depression of the 17th to 21st.—In the meantime on the 17th, a very shallow depression had appeared over the East Satpuras where the barometer had fallen slightly. On the 18th the depression was still shown in much the same position. Conditions on this day were suspicious over the Bombay coast and Kathiawar, and there were signs of the development of a low pressure area over this area also. Rain was falling in both regions. On the following day the shallow depression from the Central Provinces had apparently moved westward and coalesced with the depression which had developed over the Bombay coast and Gujarat, and the combined depression extended from Akola in the east to Deesa in the west. Moderate to heavy rain was received in the immediate neighbourhood of the storm—more particularly in Gujarat, but the storm itself was exceedingly shallow. The depression extended slightly westward during the 19th and at 8 A.M. on the 20th, was shown as a shallow low pressure area lying over Gujarat and the north-west dry area. Rain continued to be received over Gujarat and Rajputana. By the 21st the depression had practically filled up, though pressure remained in defect over Gujerat and Rajputana and rain continued to be received over the same area as on the 20th.

Moderate cyclonic storm of the 21st to the 26th.—On the 21st pressure was falling briskly over nearly the whole of the Bay. Pressure at 8 A.M. was about normal over the Bay area, but a depression, which at that time was pro-

bably very shallow and ill-defined, was developing over the north-west of the Bay. The following gives marine data for the 21st :—

Name of Vessel.	8 A.M. position. Lat. N.	Long. E.	Barometer as corrected by Calcutta. office.	Wind Direction.	Force.	Weather.
	° ′	° ′	″			
S.S. *Lai Sang* .	15 00	92 52	29·764	WSW	4	Moderate sea and cloudy. 4 P.M. heavy rain squalls.
S.S. *Rajput* .	15 24	94 50	·988	WSW	3	Moderate sea and squally with heavy showers.
S.S. *Shahsada* .	15 32	95 01	·771	WSW	4	Moderate sea and heavy rain.
S.S. *Itaura* .	15 52	86 21	·682	SW by S	4	Moderate following sea and fine; 8 P.M. overcast.
S.S. *Nerbudda* .	15 55	85 45	·748	SW	5	Squally.
S.S. *Kistna* .	Rangoon.		·777	...	...	4 A.M. fine.
S.S. *Clan Macaulay.*	17 16	86 26	·712	Var	2	Rainy. 4 A.M. heavy rain squalls.
S.S. *Purulia* .	17 29	91 59	·728	W	4	Slight sea and dull overcast. 8 P.M. heavy rain and wind squalls.
S.S. *Maharaja* .	18 36	93 07	·728	NW	2	Sea smooth and cloudy. Noon, squally.
S.S. *Ikhona* .	19 53	87 46	·667	Var	2	Smooth sea and fine.
S.S. *Nawab* .	20 08	89 09	·827	SSE	2 to 3	Slight sea and fine. 4 P.M. cloudy.
S.S. *Kapurthala* .	Akyab.		·698	...	...	Noon, fine.
S.S. *Scharlachberger.*	near Diamond Harbour.		...	SW	4	
S.S. *Katoria* .	near Calcutta.		·710	...	...	Noon fine.

The above shows that there was an area of light winds and rain off the Ganjam coast, where the depression was apparently forming.

The following gives data for 8 A.M. for the stations around the Bay and shows the north-west winds on the Orissa and Ganjam coasts and the general fall of the barometer which were the only indications of unsettled weather at this time :—

Station.	Pressure. 8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Wind Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather
	″	″	″				Inches.	
Madras .	29·795	—·043	+·010	W	5	5	...	Sea smooth.
Nellore .	·776	—·048	+·018	Calm	3	10	1·59	Drizzling rain.
Masulipatam	·767	—·028	+·022	WNW	6	10	0·04	Thunder.
Cocanada .	·712	—·055	—·016	W	5	8	1·47	Sea slight.
Waltair .	·702	—·078	—·008	SW	7	5	...	Sea smooth.
Gopalpur .	29·688	—·083	—·010	NNW	8	0	0·49	Sea smooth.
Cuttack .	·694	—·078	+·008	Calm	0	5	0·72	
False Point.	·699	—·099	+·006	N	6	5	...	Thunder.
Balasore .	·700	—·093	—·012	SW	3	2	...	
Saugor Island .	·697	—·089	—·003	S	10	8	...	Thunder.
Calcutta .	·708	—·097	+·003	SW	3	8	...	
Barisal .	·711	—·108	—·034?	SW	2	4	...	
Chittagong .	·738	—·081	—·020	SE	4	7	...	
Akyab .	·750	—·077	—·016	ENE	3	6	2·10	
Bassein .	·781	—·068	+·002?	NW	3	10	0·97	Raining.
Daimond Island.	·772	—·073	—·018	WSW	10	10	0·07	Drizzling.

September 22nd.—Pressure was giving way all over the Bay—briskly in the north. The following gives marine data for this day :—

Name of Vessel.	8 A.M. position. Lat. N.	Long. E.	Barometer as corrected by Calcutta Office.	Wind Direction.	Force.	Weather.
	° ′	° ′	″			
S.S. *Patrician* .	10 19	83 30	...	SW	4	Moderate following sea and fine. 4 P.M. cloudy.
S.S. *Islanda* .	12 18	84 31	29·702	SW	5	Slight sea and fine; midnight overcast.
S.S. *Shirala* .	12 28	84 38	·686	WSW	6	Moderate sea and fine. 4 P.M. cloudy
S.S. *Okhla* .	12 55	84 60	·681	SW by S	4	Cloudy.
S.S. *Nerludda* .	13 01	84 29	·726	SW	4	Fine.
S.S. *Oolobaria* .	13 37	85 28	·692	SW	5	Moderate sea and fine. 4P.M. overcast.
S.S. *Booldana* .	14 03	87 47	·725	SW	4	Slight sea and cloudy.
S.S. *Pasha* .	14 54	94 26*	·765	SW	6	Rough sea and showery; 4 A.M. continuous rain.
S.S. *Malda* .	Rangoon		·696	...	...	Midnight squally with rain.
S.S. *Rajput* .	17 32	92 04	·878	WNW	2	Westerly swell and squally with heavy rain.
S.S. *Nawab* .	18 05	91 23	·637	SSW	1	Cloudy. 4 P.M. continuous rain.
S.S. *Itaura* .	19 21	87 57	·592	WNW	2	Sea smooth and fine.
S.S. *Purulia* .	20 10	89 00	·710	Var.	1	Fine. Noon showery.
S.S. *Clan Macaulay.*	21 23	87 45	·647	NE	2	Sea smooth and fine.
S.S. *Katoria* .	21 23	90 48	·684	ENE	2	Calm sea and fine; noon, cloudy.
S.S. *Lawada* .	Lower	Gasper.	·635	N	0	Sea smooth. Noon fine.
S.S. *Maharaja* .	21 56	91 48	·714	NE	2	Fine.
S.S. *Kapurthala* .	Chittagong		·670	...	...	4 A.M. fine.
S.S. *Purnea* .	Calcutta		·626	...	...	Noon, fine.
S.S. *Ujina* .	Near Calcutta*		·651	...	...	4 P.M. fine.

* Noon position.

The above shows that the depression had intensified somewhat during the previous 24 hours, and that a fairly complete circulation of the winds existed. The weather was generally much finer over the north of the Bay, where the storm was developing, than in the south where strong south-westerly winds and squally weather were reported.

The following gives 8A.M. data for the stations around the north of the Bay :—

Station.	Pressure. 8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8A.M.	Wind. Average hourly velocity in miles during past 24 hours	Cloud.	Rainfall.	Weather.
							Inches.	
Cocanada .	29·685	—·027	—·046	WSW	9	8	...	Sea rising.
Waltair .	·667	—·035	—·047	SW	7	7	1·40	Sea smooth.
Gopalpur .	·635	—·053	—·067	NNW	8	2	...	
Cuttack .	·634	—·060	—·059	Calm	0	3	...	
False Point .	·650	—·049	—·049?	NE	5	8	...	Thunder.
Balasore .	·652	—·048	—·067	NE	2	2	...	
Saugor Island .	·648	—·049	—·059	NW	6	6	...	Sea smooth.
Calcutta .	·657	—·051	—·054	NE	3	7	...	
Barisal .	·664	—·047	—·086	NW	2	6	...	
Chittagong .	·650	—·088	—·112	E	3	2	0·15	Showery.
Akyab .	·657	—·093	—·113	SE	3	5	0·19	

The above shows a brisk fall of the barometer and a gradual intensification of the depression.

September 23rd.—Pressure had continued to give way over and around the Bay and apparently a centre had been developed within the storm. The following gives marine data for this day :—

Name of Vessel.	8 A.M. position. Lat. N.	8 A.M. position. Long. E.	Barometer as corrected by Calcutta Office.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	″			
S. S. *Booldana* . .	14 32	91 44	29·739	WSW	4	Moderate following sea and squally.
S. S. *Patrician* . .	14 36	85 33	...	W	5	Moderate sea and cloudy. 4 P.M. showery.
S. S. *Clematis* . . .	15 04	82 20	·652	W	1	Sea smooth and overcast. 4 A.M. heavy rain.
S. S. *Islanda* . . .	15 32	85 52	·601	W	5	Moderate swell and overcast. 4 P.M. slight rain.
S. S. *Malda* . . .	15 38	93 51	·633	WSW	4	Moderate sea and heavy squalls and continuous heavy rain.
S. S. *Shirala* . . .	15 57	86 17	29·560	WSW	4	Moderate swell and fine. 4 A.M. cloudy.
S. S. *Nawab* . . .	15 58	94 05	·727	SW	4	Moderate sea and showery.
S. S. *Oolobaria* . .	16 22	86 42	·576	WSW	4	Moderate sea and heavy rain.
S. S. *Okhla* . . .	16 23	86 36	·521	SW	4	Westerly swell and fine. 4 P.M. occasional rain squalls.
S. S. *Purnea* . . .	18 29	90 58	·624	NE	2	Continuous rain. 8 P.M. frequent rain squalls.
S. S. *Kohinur* . . .	19 18	85 55*	·641	NW by W	2 to 3	Head swell and cloudy. 4 A.M. rainy looking.
S. S. *Rajput* . . .	20 00	89 41	·788	N by E	2	Slight sea and cloudy.
S. S. *Maharaja* . .	Norman's Point.		·600	...	...	8 P.M. squally.
S. S. *Kapurthala* . .	Chittagong		·591	...	...	4 P.M. cloudy.
S. S. *Chanda* . . .	Calcutta		·669	...	...	Noon, fine.
S. S. *Florida* . . .	Calcutta		·634	...	...	Midnight cloudy.

* Noon position.

The preceding data show that the depression had further intensified, that its centre lay apparently in Lat. 18° N. and Long. 89° 30′ E., and that there was a general indraught of winds taking place towards that centre—moderate in force in the south and weak in the north. The weather was more cloudy and rainy.

The following gives 8 A.M. data for the stations around the Bay :—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	″	″	″				Inch.	
Cocanada .	29·639	—·046	—·096	WSW	9	9	...	Sea slight.
Waltair .	·617	—·050	—·102	SW	6	9	0·15	Sea smooth.
Gopalpur .	·621	—·014	—·086	NNW	8	1	0·65	
Cuttack .	·633	—·001	—·070	Calm	1	6	...	
False Point .	·622	—·028	—·084	N	5	9	...	
Balasore .	·647	—·005	—·080	E	1	4	...	
Saugor Island.	·632	—·016	—·082	NE	5	9	0·04	Thunderstorm.
Calcutta .	·649	—·008	—·069	Calm	2	10	...	
Barisal .	·628	—·036	—·127	NNW	1	4	...	
Chittagong .	·617	—·033	—·151	ESE	2	10	0·12	Showery.
Akyab .	·636	—·021	—·138	NE	3	8	0·25	

There was very little rain around the Bay.

September 24th.—The barometer had fallen in the extreme north of the Bay but had risen somewhat elsewhere. The storm had intensified and the weather was unsettled in the north of the Bay. The following gives marine data for this day :—

Name of Vessel.	8 A.M. position. Lat. N.	8 A.M. position. Long. E.	Barometer as corrected by Calcutta Office.	Wind. Direction.	Wind. Force	Weather.
	° ′	° ′	″			
S. S. *Goorkha*	Madras		29·740	...	...	Midnight cloudy.
S. S. *Clematis*	17 27	84 38	·752	SW	2	Sea smooth and fine. Midnight heavy rain.
S. S. *Kohinur*	17 33	83 10	·693	SW	2 to 3	Moderate sea and fine. Noon cloudy.
S. S. *Malda*	18 23	90 46	·601	SW by S	5	High sea and frequent heavy squalls.
S. S. *Islanda*	18 47	87 18	·575	NNW	5	Sea smooth and overcast. Midnight heavy rain.
S. S. *Patrician*	18 55	87 25	...	NNW	4	Moderate southerly swell and overcast. Midnight squally with heavy rain.
S. S. *Oolobaria*	19 01	87 34	·561	NW by W	2	Heavy rain squalls.
S. S. *Dunolly*	19 12	87 30*	·560	WNW	5	Squally. Noon squally with heavy rain.
S. S. *Shirala*	19 24	87 27	·559	WNW	6	Slight sea and heavy rain squalls.
S. S. *Chanda*	19 54	89 37	·531	SSW	6	Rough sea and cloudy. Midnight heavy wind and rain squalls.
S. S. *Ujina*	20 34	88 01	·578	NNE	4	Moderate sea and rainy.
S. S. *Florida*	20 38	88 21	·654	NE	4	Cloudy. 4 P.M. heavy rain.
S. S. *Maharaja*	21 13	89 05	·525	E by S	6	Rough sea and heavy rain showers.
S. S. *Kapurthala*	LongSand		·746	NE	6	Moderate sea and cloudy.
S. S. *Katoria*	Chittagong		·692	...	...	Midnight frequent rain and wind squalls.

*Noon position.

The preceding data show that the storm had advanced northward and that the centre lay in about Lat. 20° 30′ N. and Long. 89° 30′ E., so that it had advanced about 200 miles during the previous 24 hours. The surrounding winds were moderate to strong in force and the weather squally and rainy. The storm apparently passed over the F. L. V. *Torch* about 5 P.M. when the wind, which had been strong from north-north-east, suddenly lulled, subsequently (at midnight) going into south-south-west in strong squalls.

The following gives 8 A.M. data for the stations around the north of the Bay :—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	″	″	″				Inches	
Cocanada	29·675	+·036	—·065	WSW	7	6	1 0	Sea smooth.
Waltair	·676	+·059	—·055	W	8	10	1·78	Ditto.
Gopalpur	·657	+·036	—·056	NNW	11	8	1·04	Thunderstorm.
Cuttack	·659	+·026	—·054	Calm	2	10	0·09	Raining.
False Point	·648	+·026	—·066	ENE	7	10	1·86	Showery.
Balasore	·637	—·010	—·099	N	4	7	0·02	
Saugor Island.	·599	—·033	—·122	NNE	8	10	0·79	Thunderstorm.
Calcutta	·625	—·024	—·101	NE	3	10	...	
Barisal	·627	—·001	—·134	SSE	2	8	0·99	Showery.
Jessore	·637	—·004	—·109	Calm	0	9	0·02	
Chittagong	·664	+·047	—·109	SE	3	9	0·21	Showery.
Akyab	·697	+·061	—·081	SE	5	10	3·25	

The barometer was falling in Lower Bengal but was recovering elsewhere. The winds were cyclonic, but not particularly strong and the rainfall was not generally heavy.

September 25th—The storm had apparently curved round and moved in a north-westerly direction and had crossed the coast in the early hours of the 25th. The marine observations on this day were of no particular importance. South-westerly to southerly winds, with an average force for the whole Bay of 4·2, prevailed with a generally rising barometer.

The following gives 8 A.M. data for the land stations in the storm area:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall	Weather.
	″	″	″				Inches	
Gopalpur	29·643	—·014	—·078	WSW	6	9	...	Sea slight.
Cuttack	·592	—·067	—·132	WSW	3	9	1·94	
False Point	·565	—·083	—·158	WSW	11	10	1·67	
Balasore	·498	—·139	—·248	WSW	9	8	2·22	Raining.
Saugor Island.	·522	—·077	—·206	S	22	10	2·87	Sea rough.
Calcutta	·550	—·075	—·194	ESE	8	10	0·61	Showery.
Barisal	.660	+·033	—·107	SSE	5	10	3·52	Duststorm.

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches.	
Jessore .	29·616	—·021	—·138	E	5	10	0·59	
Burdwan .	·550	—·094	—·202	SE	5	10	1·57	Showery.
Berhampore	·626	—·025	—·121	E	4	10	1·01	Ditto.
Ranchi .	·610	—·079	—·134	NNW	6	10	0·57	Ditto.
Chaibassa .	·555	—·124	—·182	NNW	2	6	2·16	Raining.
Hazaribagh	·632	—·068	—·110	NE	10	10	0·64	Thunder.

The barometer had fallen briskly to rapidly over south-west Bengal, and had recovered elsewhere. The storm had advanced in a north-westerly direction and the centre lay apparently in Lat. 21° 30′ N. and Long. 87° 40′ E, so that the storm had advanced about 170 miles north-westward. The storm had apparently intensified somewhat, and pressure at the centre was probably about 0·250″ below the normal. The winds were cyclonic and fairly strong, and moderate rain had fallen over Bengal.

September 26th.—The storm had continued to advance north-westward and the centre at 8 A.M., lay near Patna. It had thus advanced 270 miles since the previous morning. The following gives 8 A.M. data for stations in the storm area :—

STATION.	PRESSURE.			WIND		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Chaibassa .	29·646	+·091	—·096	WSW	2	5	1·50	Continuous rain.
Ranchi .	·641	+·031	—·115	W	8	10	1·10	Showery.
Hazaribagh	·626	—·006	—·134	NW	15	10	1·73	Drizzling rain.
Gaya .	·590	—·067	—·159	W	12	10	1·57	Continuous rain.
Patna .	·489	—·212	—·266	NW	18	10	3·19	Ditto.
Darbhanga	·571	—·144	—·192	ESE	12	10	5·46	Heavy rain.
Purnea .	·651	—·069	—·109	SE	12	10	1·50	Showery.
Burdwan .	·666	+·110	—·103	ESE	5	10	0·24	Ditto.
Berhampore	·666	+·040	—·093	SE	8	10	0·95	Ditto.
Bogra .	·696	+·012	—·060	E	12	10	2·74	
Dinajpur .	·711	—·025	—·061	E	14	10	2·27	Continuous rain.

Pressure had fallen rapidly in Bihar and risen briskly to rapidly in Lower Bengal. The winds were cyclonic but only moderately strong, and the principal feature of the storm was the moderately heavy rain in Bihar. The following gives particulars of the principal amounts recorded :—

DISTRICT.	Station.	Rainfall during 24 hours preceding 8 A.M. of 26th September 1902.
		Inches.
BHAGALPUR . . .	Sapaul	7·92
MONGHYR	Jamalpur	5·63
PATNA	Barh	5·60
MONGHYR	Begusarai . . .	5·51
DARBHANGA . . .	Darbhanga	5·46
MUZAFFARPUR . . .	Muzaffarpur	5·05
DARBHANGA . . .	Roserha.	5·00
BHAGALPUR	Bansil	4·55
DARBHANGA . . .	Tajpur	4·42
	Bahera	4·40
MONGHYR	Chupreon	4·35
BHAGALPUR	Madhipura	4·30

The reports of the 27th showed that the barometer had risen very rapidly in the storm area and that the storm had filled up.

During the last four days of the month conditions were suspicious over the Bay, where pressure was exceedingly uniform. On the 29th the winds at Diamond Island and Rangoon changed in such a manner as to indicate feeble cyclonic actions taking place in that area, while heavy rain at the same time set in over the same region. These changes apparently indicated that a small cyclonic storm had either entered the Andaman Sea from regions to the eastward, or had been developed in that locality. The following gives observations for the stations on the south Burma coast :—

STATION.	PRESSURE.			WIND		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Mergui .	29·933	+·049	+·089	Calm	1	5	0·76	...
Tavoy .	·932	+·035	+·072	Calm	1	8	0·95	Showery.
Moulmein .	·873	+·022	+·044	S	2	10	2·02	...
Rangoon .	·839	+·031	+·010	ESE	5	10	4·18	Continuous rain.
Bassein .	·825	+·028	+·020	Calm	3	8	0·95	Drizzling rain.
Diamond Island.	·822	+·028	+·005	NW	8	10	4·31	Continuous rain.

The following gives marine observations of vessels in the neighbourhood of the Burma coast :—

Name of Vessel.	8 A.M. position. Lat. N.	Long. E.	Barometer as corrected by Calcutta office.	Wind Direction.	Force.	Weather.
	° ′	° ′	″			
S.S. *Lightning*	16 19	91 51	...	WSW	6	Beam sea and heavy rain.
S.S. *Chanda*	Rangoon		29 813	...	...	8 P.M. fine.
S.S. *Purnea*	Rangoon		·804	...	...	8 P.M. squally.
S.S. *Maharani*	19 11	91 58	·797	S	3	Moderate sea and fine. 4 P.M. heavy rain.
S.S. *Madura*	19 20	90 30	·730	S	2	Slight southerly swell and fine. 8 A.M. occasional rain.
S.S. *Kaputtala*	21 40	91 13	·755	N	2	Cloudy.
S.S. *Kistna*	22 10	91 40	·799	Var.	2	Frequent rain.

The only observation of importance with regard to the weather in this region, was the strong west-south-west wind and heavy rain on board the *Lightning*, in Lat. 16° 19′ N and Long 91° 51′ E.

On the following day conditions were still very ill-defined. The following gives marine observations for this day :—

Name of Vessel.	8 A.M. position. Lat. N.	Long. E.	Barometer as corrected by Calcutta office.	Wind Direction.	Force.	Weather.
	° ′	° ′	″			
S.S. *Orissa*	10 58	95 44	29·867	W	2	Smooth sea and fine. Noon, light rain.
S.S. *Madura*	15 52	94 01	·774	SSW	4	Showery. 8 P.M. rainy.
S.S. *Maharani*	16 00	93 51	·830	SSW	4	Showery. Noon, squally.
S.S. *Purnea*	16 15	93 12	·833	W	2	Passing showers. Noon, heavy rain.
S.S. *Shahzada*	Moulmein		·881	...	...	Noon, cloudy.
S.S. *Chanda*	16 34	97 00	·860	S	4	Cloudy.
S.S. *City of Benares*	18 33	87 06	·932	Var.	1	Fine.
S.S. *Lightning*	19 25	89 34	...	N	4	Fine.
S.S. *Kistna*	Near Chittagong		·805	...	...	Noon, fine.

The preceding data apparently indicated the presence of a shallow or small cyclonic storm over the east of the Bay off the Burma coast. The future history of this storm will be given in the October Review.

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

The snowfall commenced about the usual time on the higher ranges of the Kashmir and north-west Himalayas. The falls were, as usual, generally light, and occurred during thunderstorms and periods of disturbed weather, which gave rain in the valleys and parts of the neighbouring plains. The snowfall of the month was, however, apparently greater than in the same month last year :—

I.—Afghan Mountain Districts.

(1) *Killa Drosh.*

15th.—Slight snow occurred on the high hills to north-east at elevations between 15,000 and 16,000 feet.

20th.—Slight snow occurred on the high hills to north-east at elevations between 15,000 and 16,000 feet.

II.—Kashmir and Punjab Himalayas.

(1) *Gulmarg.*

14th.—Afferwata peak covered with moderate, fresh fall of snow.

17th.—Fresh, heavy snowfall covered high mountains, especially Afferwata, down as low as Khelunmarg.

24th.—The western peak received a fresh, light fall of snow.

(2) *Simla.*

Though no considerable snowfall occurred during the month, the number of small falls down to 11,000 or 12,000, feet has been unusual. The following were the falls of snow at a height of 11,000 feet.

On the 17th	½ inch
20th	½ „
21st	½ „
22nd	½ „
23rd	½ „
24th	½ „
25th	1 „
26th	1 „

On the peaks the falls between the 17th and 24th, were about 6″ in depth and on the 25th and 26th, about 1′.

At the close of the month the snow accumulation on the passes was as follows :—

Rupin Pass	6 feet
Branni „	6 „
Shatul „	5 to 6 „
Bulder „	6 „
Runang „	1 foot

III.—United Provinces Himalayas.

(1) *Almora.*

In the Almora district the snow fall was greater than in the previous year.

The falls occurred as follows:—

Malla Johar.

2nd	September	1 foot
7th	,,	1 ,,
12th	,,	1 ,,
17th and 18th	,,	2 feet
21st	,,	1 foot
26th and 27th	,,	2 feet
	Total	8 feet

Malla Danpur.

3rd	September	3 inches
8th	,,	3 ,,
19th	,,	3 ,,
25th	,,	6 ,,
	Total	15 inches

Byans, Chandas and Darma.

12th	September	1 foot
22nd and 23rd	,,	2½ feet
	Total	3½ feet

(2) *Garhwal.*

There were slight snowfalls in this district on the perpetual snows on the 5th, 12th, 18th, 19th, 22nd, and 23rd September.

Summary of special Storm Reports.

The local storms during the month were of about the average number and severity. The following gives a statement of the chief local storms of which reports were received during the month:—

September 4th:—A thunderstorm with drizzling rain and hard squalls of wind was experienced at Gulmarg.

7th.—A thunderstorm with very vivid and frequent lightning was felt at Saugor Island between 2 A.M. and 8 P.M.

8th.—A thunderstorm occurred at Lahore between 7 P.M. and 8 P.M. with moderate rain.

12th.—A local dust storm passed over Srinagar at 4 P.M.

14th.—A thunderstorm was experienced at Srinagar between 9 A.M. and 1 P.M. Some drizzling rain was received.

16th.—A local storm, giving showers, occurred at Lahore between 2 P.M. and 6 P.M. Pressure increased steadily during the storm and at 4 P.M., was higher than at 10 A.M. On the same day a dust storm with thunder and heavy rain was experienced at Ludhiana between 2 P.M. and 4 P.M.

16th.—A thunderstorm commenced at 4 P.M. at Simla. There were heavy showers of rain and frequent thunder and lightning. The storm lasted about 1 hour.

At Srinagar a thunderstorm was experienced between 10 A.M. and 2 P.M., with continuous rain. The first snow of the season fell on the higher hills during this storm and the storm was apparently general over the north-west Himalayas.

19th.—Brief thunderstorm was experienced at Pachmarhi in the evening.

,, A severe thunderstorm was experienced at Simla at 3-45 P.M., and lasted 40 minutes. Heavy rain fell for 5 minutes, the thunder was loud and a thick mist prevailed.

20th.—A severe thunderstorm was felt at Gulmarg between 4 P.M. and 10 P.M., with high winds.

,, Between 10-30 A.M. and 4 P.M. a thunderstorm with rain occurred at Sambhar and in its neighbourhood.

21st.—A heavy downpour of rain occurred during the night at Saugor. (Central Provinces.)

24th.—A thunderstorm accompanied with hail occurred at Gulmarg between noon and 1 P.M. Snow fell on the higher peaks.

Earthquakes.—The observer at Kashgar reports that there have been severe shocks of earthquake in that neighbourhood. The villages near the watershed of the Shan mountain have suffered most while Alabashi and Narin on the other side of the range, have suffered very little. A very severe and sharp shock was felt about 10 P.M., on the 3rd September. Slight shocks were felt as under:—

On	September 4th	at 11 P.M.
	6th	,, 7 P.M.
	7th	,, 9 A.M.
	10th	,, 11 P.M.
	11th	,, 8 A.M.
	16th	,, 3 P.M.
	19th	,, 1 A.M.
	26th	,, 11-40 P.M.

6th September.—On the 6th at Rasidpur and Adampur sharp shocks of earthquake were felt at 3-30 A.M., local time. These stations are apparently on the Assam-Bengal Railway, and at Comilla a smart shock occurred at 3-19 A.M.

20th September.—On the 20th at Srinagar a shock of earthquake was felt at 11-56 A.M. The direction was north-east to south-west and the shock lasted 1 minute 50 seconds. Slight shocks were felt—

At	Dras	at 11-56 A.M.
,,	Kargil	,, noon.
,,	Skardu	,, 11-55 A.M.

,, A severe shock was felt at Gulmarg at 12-5 P.M., lasting 20 seconds.

,, At Killa Drosh on the 20th a big earthquake, lasting about 1 minute, occurred at 11-30 A.M.

Brief Summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—Well-marked monsoon conditions obtained over this area during the first 22 days of the month. A sudden change occurred on the 23rd and 24th when light unsteady winds, chiefly from easterly directions, set in over nearly the whole of the area and held throughout the remainder of the month.

The mean air movement was more or less below its normal intensity on no less than 22 days, the weakness being most marked during the last four days of the month when the mean force of the winds was only 2·6, as compared with 3·5, the normal of the month. The chief feature of the weather of the month in the Arabian Sea, was the unusually rapid withdrawal of the monsoon current about the 23rd of the month, from the greater part of the area.

Bay of Bengal.—The most important features of the meteorological conditions of the month in this area, were the extreme unsteadiness of the monsoon current and the formation of a series of four cyclonic disturbances over the Bay—a larger number than usual. All the four storms were, however, of feeble intensity and hence did not exercise any marked influence on the air movement and weather over the Bay.

As in the Arabian Sea, the air movement in the Bay was lighter than usual. It was above its normal intensity in two well-defined periods, *viz.*, (1) from the 1st to the 9th, and (2) the 23rd to the 26th, and lighter than usual on most other days. The feebleness was on the whole greatest on the 29th and 30th, when the winds over the Bay were nearly 35 per cent. weaker than usual.

On the mean of the month the air movement over the Bay was 0·2 below its normal intensity, *viz.*, 3·7.

Equatorial Belt.—There is as usual no information available for the eastern half of this region. In the western half (so far as can be judged from the data of a few ships) the winds were considerably below their normal intensity during the last 10 or 11 days of the month.

A noteworthy feature of the meteorology of the month was the scanty rainfall at the Seychelles, which obtained a total of 2·51 inches, as compared with 5 inches, its normal amount. Zanzibar on the other hand received about 60 per cent. more than its normal fall.

Temperature of the air.

The mean temperature conditions of the month varied to only a small extent from the normal over a large part of the Indian land area. The rainfall of the month was heavier than usual over a considerable part of the country and continued to fall up to about the usual date, so that the main condition affecting temperature at this season of the year was approximately normal, and as a result the temperature variations from the average, were correspondingly slight.

The mean maximum or day temperature of the month exceeded the normal in three areas, *viz.*, (1) the north Punjab and the Indus Valley, (2) the east of the Peninsula (except the central Madras coast) and Lower Bengal, and (3) the Burma coast district. The excess in these areas was generally small and amounted to 1°·0 or more in amount only at the following stations:—

Area.	Station.	Mean maximum temperature.		
		Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
		°	°	°
First Area	Mooltan	103·3	100·3	+3·0
	Kurrachee	91·2	88·8	+2·4
	Jacobabad	104·8	103·5	+1·3
	Peshawar	97·3	96·0	+1·3
Second Area	Bijapur	88·1	85·9	+2·2
	Saugor Island	90·4	88·2	+2·2
	Cuddalore	93·8	91·9	+1·9
	Calcutta	89·5	87·7	+1·8
	Trichinopoly	97·1	95·5	+1·6
	Madura	96·9	95·3	+1·6
	Cuttack	91·4	90·2	+1·2
Third Area	Moulmein	85·8	84·8	+1·0
	Toungoo	90·0	89·0	+1·0

Over the whole of the remainder of India the mean maximum temperature of the month was generally below the normal. The deficiency was unimportant over the west of the Peninsula, Central India and the interior of Burma, but was considerable in several areas in north-west India, as well as locally in the central Madras coast district and in north Bengal. The following gives com-

parative data for stations at which the deficiency was more than 2° :—

Station.	Mean maximum temperature.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	°	°	°
Ludhiana	91·3	94·9	—3·6
Bhavnagar Para	90·0	93·0	—3·0
Jalpaiguri	84·4	87·2	—2·8
Delhi	90·4	93·0	—2·6
Ahmedabad	89·5	92·1	—2·6
Nellore	92·1	94·6	—2·5
Jhansi	89·4	91·7	—2·3
Lahore	96·6	98·9	—2·3
Ajmer	88·6	90·8	—2·2
Rajkot	89·3	91·4	—2·1

The various storms which entered India during the month under review, gave heavy localised rainfall and overcast skies to the stations within their path. These conditions exercised the usual influence on the day temperature, the depression of which was very large on these occasions. The following gives the principal examples:—The 3rd when a storm was passing through Gujarat; the 11th, 12th, 13th and 14th when a storm was traversing the United Provinces and the Punjab; the 20th when a depression was passing through Gujarat; and the 25th and 26th when a depression passed from the Bay into Bihar :—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
3rd Sept.	Surat	81·0	87·9	— 6·9
	Bhavnagar Para	87·5	92·0	— 4·5
	Veraval	79·2	83·7	— 4·5
11th „	Allahabad	83·1	91·3	— 8·2
	Lucknow	85·8	92·1	— 6·3
	Delhi	89·2	92·8	— 3·6
	Lahore	95·4	98·8	— 3·4
12th „	Mainpuri	81·3	92·8	—11·5
	Agra	83·0	92·7	— 9·7
	Bahraich	81·6	90·8	— 9·2
	Delhi	87·2	92·8	— 5·6
13th „	Bahraich	78·1	90·9	—12·8
	Bareilly	79·3	90·3	—11·0
	Mainpuri	82·3	92·9	—10·6
	Delhi	83·2	92·9	— 9·7
	Lahore	89·9	99·0	— 9·1
14th „	Rawalpindi	83·9	94·0	—10·1
	Mainpuri	84·3	93·0	— 8·7
	Lucknow	83·8	92·3	— 8·5
	Khushab	92·3	100·2	— 7·9
20th „	Rajkot	85·4	91·8	— 6·4
	Bhavnagar Para	87·5	93·4	— 5·9
	Deesa	91·6	93·8	— 2·2
25th „	Gaya	88·9	90·8	— 1·9
	Saugor Island	86·4	88·1	— 1·7
	Barisal	86·3	88·0	— 1·7
26th „	Purnea	77·7	88·6	—10·9
	Jalpaiguri	77·4	86·5	— 9·1
	Gaya	82·4	90·9	— 8·5
	Dinajpur	79·3	87·6	— 8·3

The largest variations of the day temperature from the normal occurred, however, in North-West India on the 16th, 17th and 18th due to thunderstorms, duststorms and snowfall, in the mountains which accompanied the dispersion of the depression of the previous three days. The following gives examples of the depression of the day temperature which followed these unsettled conditions :—

Date.	Station.	Maximum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
16th Sept.	Khushab	94·3	100·1	— 5·8
	Lahore	94·4	99·1	— 4·7
	Rawalpindi	90·9	94·0	— 3·1
17th „	Sialkot	80·5	96·3	—15·8
	Rawalpindi	80·9	93·9	—13·0
	Khushab	87·3	100·0	—12·7
	D. I. Khan	88·3	100·6	—12·3
	Peshawar	87·1	96·0	— 8·9
	Lahore	91·9	99·2	— 7·3
18th „	D. I. Khan	81·8	100·6	—18·8
	Jacobabad	91·0	103·6	—12·6
	Mooltan	88·8	100·4	—11·6
	Lahore	88·4	99·2	—10·8
	Montgomery	91·0	101·8	—10·8
	Ludhiana	87·1	94·9	— 7·8
	Sirsa	91·3	99·0	— 7·7

The mean actual maximum temperatures of the month exceeded 90°·0 over the plains of north-west India, and exceeded 100° at the four following stations:—

Station.	Mean maximum temperature.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	°	°	°
Jacobabad	104·8	103·5	+1·3
Mooltan	103·3	100·3	+3·0
Montgomery	100·4	101·7	—1·3
D. I. Khan	100·3	100·5	—0·2

The mean actual maximum temperature also exceeded 90°·0 over Madras and the Madras Deccan and equalled 97°·1 at Trichinopoly and Tinnevelly. Over the west of the Peninsula the mean monthly maximum temperature was below 85°·0, while all over the large area embracing the Deccan, the Satpuras, the Central India plateau, north-east India and Burma the mean actual maximum varied generally between 85°·0 and 90°·0.

The following table gives the highest maximum temperature recorded in each division or province during September 1902 with the date and station, together with the highest temperatures previously recorded at these stations in September:—

Province or Division.	Station.	Highest maximum temperature recorded in September 1902.	Date on which recorded.	Highest maximum temperature recorded in September previous to 1902.	Year in which recorded.
		°		°	
Burma	Yamethin	96·8	18th	100·5	1897
Assam	Silchar	97·6	1st	101·3	1887
Bengal	Cooch Behar	95·9	1st	94·9	1900
Orissa	Cuttack	94·9	5th	97·9	1899, and 1901
Bihar	Purnea	95·2	1st	96·4	1876, and 1881
Chota-Nagpur	Purulia	94·5	7th	96·6	1901
United Provinces.	Cawnpore	99·4	3rd	102·4	1896
Punjab	Mooltan	109·4	12th	111·4	1898
Sind	Jacobabad	111·8	3rd	115·3	1877
Rajputana	Bikaner	105·1	13th	109·0	1898
Gujarat	Bhuj	95·8	19th and 22nd.	103·8	1901
Central India.	Nowgong	92·0	21st	99·6	1880
Central Provinces.	Chanda	93·2	21st	98·7	1899
Berar	Amraoti	93·2	26th	101·3	1899
West Coast	Cochin	89·3	23rd	91·0	1900
Bombay Deccan.	Sholapur	94·2	8th	98·7	1899
Mysore	Mysore	88·1	28th	92·1	1899
Madras Coast.	Cuddalore	98·7	3rd	101·3	1891
Madras Deccan	Indur	96·3	25th	97·1	1895
South India	Trichinopoly	101·6	4th	103·1	1896 and 1899

At the hill stations the variations of the mean maximum temperatures from the normal were irregular. The following gives comparative data:—

Hill Station.	Mean maximum temperature.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	°	°	°
Gilgit	88·0	86·0	+2·0
Srinagar	80·7	79·4	+1·3
Kalat	85·2	85·2	+1·0
Quetta	86·1	85·4	+0·7
Leh	67·9	70·3	—2·4
Chakrata	66·7	68·7	—2·0
Murree	72·2	73·8	—1·6
Mussooree	67·3	68·6	—1·3
Chaman	90·8	91·6	—0·8
Mount Abu	74·6	75·3	—0·7
Simla	65·6	66·1	—0·5
Cherat	85·4	85·8	—0·4
Ranikhet	72·2	72·6	—0·4
Darjeeling	64·1	64·1	0
Pachmarhi	79·2	77·2	+2·0
Wellington	71·2	71·3	—0·1

The mean minimum or night temperature of the month was generally above the normal. It was, however, below the normal in two areas, one including north-east Bengal and Upper Burma, the second including the east of the United Provinces, of the Central Provinces and the north of Madras. Within these two areas the depression of temperature was small and only amounted to or exceeded 1°·0 at the following stations:—

Station.	Mean minimum temperature.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	°	°	°
Raipur	72·2	74·8	—2·6
Patna	77·4	79·1	—1·7
Toungoo	74·3	75·6	—1·3
Benares	76·3	77·4	—1·1
Waltair	77·5	78·5	—1·0

With a few local exceptions, the mean monthly minimum temperature exceeded the normal in all other parts of the country. The excess on the mean of the month was

greatest over parts of north-west India, and was more than 2°·0 at the following stations:—

Station.	Mean minimum temperature. Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	°	°	°
Sirsa	78·1	75·7	+2·4
Deesa	76·3	73·9	+2·4
Kurrachee	79·3	76·9	+2·4
Ajmer	75·9	73·6	+2·3
Negapatam	78·6	76·5	+2·1

The mean night temperature at the hill stations was generally about normal except at Leh, Murree, Kalat and Pachmarhi, where the variations were as follows:—

Hill Station.	Mean minimum temperature. Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	°	°	°
Kalat	33·8	39·5	−5·7
Murree	55·9	58·8	−2·9
Leh	39·8	41·5	−1·7
Pachmarhi	67·5	66·3	+1·2

The mean temperature of the month varied generally by only small amounts from the average. It was lower than usual over the inland parts of Burma, along the foot of the Himalayas, over the Gangetic Plain, and within two long arms, one stretching from the United Provinces south-westward to Kathiawar, the second southward from the United Provinces to Madras and thence westward to Malabar. In all other parts of the country the mean temperature was in excess. The following gives the variations above and below the normal, which amounted to, or exceeded 1·5°:—

Station.	Mean daily temperature. Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	°	°	°
Mooltan	91·5	89·0	+2·5
Kurrachee	85·3	82·9	+2·4
Cuddalore	85·8	83·8	+2·0
Trichinopoly	87·2	85·6	+1·6
Saugor Island	85·5	83·9	+1·6
Negapatam	85·9	84·4	+1·5
Bijapur	79·3	77·8	+1·5
Jalpaiguri	79·9	81·5	−1·6
Patna	83·0	84·5	−1·5

The mean temperature was generally in defect at the hill stations on the outer ranges of the Himalayas, and generally in excess at those on the inner ranges and at the central hill stations. This is shown below:—

Hill Station.	Mean daily temperature. Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	°	°	°
Kalat	60·0	62·4	−2·4
Murree	64·1	66·4	−2·3
Leh	53·9	56·0	−2·1
Chakrata	61·9	62·9	−1·0
Mussooree	62·5	63·1	−0·6
Wellington	63·2	63·6	−0·4
Simla	61·0	61·3	−0·3
Chaman	76·7	77·0	−0·3
Cherat	75·6	75·9	−0·3
Darjeeling	60·0	60·2	−0·2
Ranikhet	66·2	66·3	−0·1
Pachmarhi	73·4	71·8	+1·6
Gilgit	77·0	75·7	+1·3
Srinagar	66·9	66·2	+0·7
Mount Abu	70·1	70·0	+0·1

The chief features of the mean temperature conditions of the month were as follows:—

(1) Increased temperature, both by day and night, over the Indus Valley;

(2) Deficient temperature by day and excessive temperature by night over the remainder of north-west India;

(3) Low temperatures, both by day and night, over parts of Bengal, Assam and Upper Burma;

(4) Increased temperature by night and deficient temperature by day over the west of the Peninsula, and

(5) Increased temperature, both by day and night, over the centre of the Peninsula.

The following table gives complete mean temperature data of the month for the 56 meteorological divisions into which India is divided :—

Province.	Division.	Actual Temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	84·5	75·0	79·8	9·5	16·7	−0·1	+0·8	−0·9
	Lower Burma (Deltaic)	85·5	76·8	81·2	8·7	15·3	+0·1	+0·9	−0·8
	Central do.	90·0	74·3	82·2	15·7	23·8	+1·0	−1·3	+2·3
	Upper do.	89·3	75·7	82·5	13·6	21·8	−1·4	0	−1·4
	Arakan	86·5	78·4	82·5	8·1	14·2	−0·1	+0·4	−0·5
Bengal and Assam.	Eastern Bengal	87·3	77·9	82·6	9·4	16·1	−0·5	+0·3	−0·8
	Assam (Surma)	90·4	76·5	83·5	13·9	23·3	+0·6	+0·1	+0·5
	Do. Hills	73·2	63·8	68·5	9·4	20·2	...	...	...
	Do. (Brahmaputra)	86·0	76·0	81·0	10·0	22·2	−1·8	−0·2	−1·6
	Deltaic Bengal	89·7	78·9	84·3	10·7	17·6	+1·4	+0·7	+0·7
	Central do.	88·9	78·2	83·5	10·6	19·6	−0·3	+0·3	−0·6
	North do.	85·6	76·0	80·9	9·7	24·2	−2·2	−0·5	−1·7
	Bengal Hills	64·1	55·8	60·0	8·3	18·1	0	−0·3	+0·3
	Orissa	89·6	79·1	84·3	10·5	18·3	+0·8	+0·9	−0·1
	Chota Nagpur	87·7	74·9	81·3	12·8	22·5	+0·7	+1·6	−0·9
	South Bihar	89·4	77·7	83·6	11·7	20·4	−0·9	−0·8	−0·1
	North do.	88·3	77·5	82·9	10·8	20·8	−1·0	+0·3	−1·3
United Provinces of Agra and Oudh.	United Provinces (East)	90·1	76·8	83·5	13·4	25·7	−1·2	−0·4	−0·8
	Oudh (South)	90·1	76·2	83·2	13·9	25·0	−2·0	−0·3	−1·7
	Do. (North)	89·7	76·7	83·2	13·0	25·6	−1·3	+0·5	−1·8
	United Provinces (Central)	90·7	76·6	83·7	14·1	26·8	−1·7	+0·5	−2·2
	Do. do. (West)	91·8	76·3	84·1	15·6	29·2	−0·7	+0·6	−1·3
	Do. do. (East Submontane).	89·5	77·4	83·5	12·1	22·5	−1·0	−0·3	−0·7
	Do. do. (West Submontane)	87·9	73·2	80·6	14·7	27·6	−0·8	+0·2	−1·0
	Do. do (Hills)	68·6	57·6	63·1	11·0	21·0	−1·2	+0·1	−1·3
Punjab and North-West Frontier Province.	Punjab (South-East)	90·4	77·4	83·9	13·0	22·1	−2·6	+0·4	−3·0
	Do. (South)	94·8	76·2	85·5	18·7	31·1	−1·5	+2·4	−3·9
	Do. (Central)	96·6	74·6	85·6	22·0	38·5	−2·3	+2·0	−4·3
	Do. (Submontane)	93·8	74·4	84·1	19·4	32·5	−0·9	+0·2	−1·1
	Do. (Hills)	76·8	53·4	65·1	23·3	42·4	−0·3	−0·7	+0·4
	Do. (North)	95·5	69·8	82·7	25·8	42·2	+0·7	+0·3	+0·4
	Do. (West)	100·6	77·0	88 8	23·5	39·4	0	+0·9	−0·9
Bombay and Malabar Coast Districts (Madras).	Malabar	83·2	74·1	78·7	9·2	14·8	−0·6	0	−0·6
	Madras (South Central)	90·3	72·2	81·3	18·1	26·4	−0·2	+0·9	−1·1
	Coorg	70·8	61·9	66·4	8·9	18·9	−1·4	0	−1·4
	Mysore	81·8	66·1	74·0	15·7	24·1	−0·6	+0·3	−0·9
	Konkan	83·2	75·6	79·4	7·4	12·3	−0·3	+0·6	−0·9
	Bombay Deccan	85·0	69·5	77·3	15·5	24·3	+0·6	+1·0	−0·4
	Hyderabad (North)	86·1	71·1	78·6	15·1	28·4	...	...	...
	Khandesh	86·2	70·2	78·2	16·0	27·4	−0·4	+1·1	−1·5
Central Provinces and Berar.	Berar	88·6	73·3	81·0	15·3	24·7	−0·2	+0·9	−1·1
	Central Provinces (West)	87·8	74·2	80·8	13·6	24·4	−0·7	+0·7	−1·4
	Do. do. (Central)	86·6	72·3	79·5	14·3	25·9	−0·6	−0·1	−0·5
	Do. do. (East)	89·2	74·3	81·8	14·9	24·5	+0·5	−1·8	+2·3
Bombay (North)	Gujarat	88·5	76·2	82·4	12·3	20·6	−1·8	+0·3	−2·1
	Kathiawar and Cutch	88·2	75·6	81·9	12·7	22·0	−1·0	+0·6	−1·6
	Sind	97·4	77·6	87·5	19·8	33·8	+0·8	+1·2	−0·4
	Baluchistan Hills	87·6	48·6	68·2	39·0	60·7	+0·3	−1·6	+1·9
Rajputana and Central India.	Central India (East)	86·5	73·3	79·9	13·2	25·6	−1·4	+0·6	−2·0
	Rajputana (East), Central India (West)	91·2	75·0	83·2	16·2	29·2	−0·7	+1·4	−2·1
	Do. (West)	96·4	77·4	86·9	19·0	34·0	−0·7	+0·6	−1·3
Madras	East Coast (North)	88·9	78·0	83·5	10·8	20·3	−0·1	−0·3	+0·2
	Hyderabad (South)	87·6	72·6	80·1	15·1	23·6	+0·4	+1·0	−0·6
	Madras (Central)	91·2	74·3	82·8	16·9	25·7	+0·4	+0·5	−0·1
	East Coast (Central)	90·6	77·6	84·1	13·1	22·1	−2·1	0	−2·1
	Do. (South)	93·6	77·5	85·5	16·1	24·7	+0·9	+1·4	−0·5
	Madras (South)	94·5	76·5	85·1	17·9	24·7	+0·5	+0·4	+0·1

The following is a summary of the chief features of the temperature conditions of the month:—

The temperature changes were directly related to the occurrence of rainfall, so that the temperature periods during the month were five in number corresponding with the cyclonic storms of the month. The first period ran from the 1st to 5th during which interval a storm advanced from the head of the Bay to Lower Sind; the second from the 6th to the 13th, during which time a storm advanced from the Bay into the United Provinces; the third from the 14th to the 15th, when there was no important storm over the country and the rainfall was generally scattered; the fourth from the 16th to the 22nd, when rapid changes occurred in the Punjab and adjacent hill regions and a shallow storm advanced from the Central Provinces into Sind; and the fifth from the 23rd to the end of the month, during which period a storm travelled from the north of the Bay into north Bihar, and another storm, the fifth of the month, appeared over the Bay.

On the 1st of the month heavy local rainfall was reported from Ludhiana and its neighbourhood, and the mean temperature was low over parts of the Punjab. The following gives data:—

Station.	Variation from normal of		
	Maximum temperature, 1st September.	Minimum temperature, 1st September.	Mean temperature, 1st September.
	°	°	°
Ludhiana	−14·3	−2·1	−8·2
Sirsa	−6·2	−1·0	−3·6
Montgomery	−4·9	−1·2	−3·1

The most important feature in the weather of this day was, however, the feeble cyclonic storm in the north-west angle of the Bay. More or less showery weather prevailed all over the Peninsula and Burma and around the north coast of the Bay and the mean temperature was in defect over the greater part of this large area while it was in excess in the Indus Valley, the Gangetic Plain, Bengal, Assam and part of Burma. The following gives variation data for the 24 hours preceding 8 A.M. of the 1st in illustration:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 1st September.	Mean minimum temperature, 1st September.	Mean daily temperature, 1st September.
	°	°	°
Purma	−1·0	+0·1	−0·5
Assam	+6·5	+3·0	+4·8
Bengal	+3·6	+1·1	+2·4
Orissa	−2·2	−1·0	−1·6
Bihar	+1·1	+0·2	+0·7
Chota Nagpur	−0·7	+0·6	−0·1
United Provinces of Agra and Oudh.	+2·4	+1·4	+1·9
N.-W. F. Province and Punjab	−2·6	+0·5	−1·1
Sind	+3·7	+2·4	+3·1
Rajputana	−2·1	+1·3	−0·4
Gujarat	−2·4	−0·2	−1·3
Central India	+0·9	+2·3	+1·6
Central Provinces	+0·1	−0·2	−0·1
Berar	−1·4	+1·9	+0·3
West Coast	−1·7	+0·1	−0·8
Bombay Deccan	−3·2	+1·6	−0·8
Mysore	−3·1	+0·4	−1·4
Madras Coast	−4·2	−0·3	−2·3
Madras Deccan	−2·4	−0·4	−1·4
South India	−3·3	+0·9	−1·2

By the 2nd the storm had reached the Central Provices and rain had become more general, so that temperature had fallen over the Satpuras while the continued fine weather had occasioned a rise of temperature over northern India. At 8 A.M. on the 3rd the centre of the storm had reached Ahmedabad, but the rainfall was not heavy except in the immediate neighbourhood of the storm and, except in Gujarat and the West Satpuras, the mean temperature was generally above the normal. On the 4th the centre of the storm had reached the Indus Valley. The flow of moist winds from the Arabian Sea on this day occasioned a general and heavy fall of rain over north Bombay and Rajputana, and a rapid fall of temperature had occurred in Gujarat where the mean temperature was largely below the normal. This depression of temperature was most marked in the day temperatures and amounted to over 10° at the following places:—

Station.	Maximum temperature.		
	Actual, 4th September.	Normal, 4th September.	Variaion of actual from normal 4th September.
	°	°	°
Rajkot	75·9	90·0	−14·1
Ahmedabad	78·1	90·7	−12·6
Bhuj	79·8	90·6	−10·8

In nearly all other parts of India the temperature continued to increase, and was above the normal almost everywhere. On the 5th the storm, which still lay over the Indus Valley, was filling up and the rain was falling off in north Bombay. The mean temperature was, however, still below the normal over an area extending from Hyderabad and Jacobabad in the west to Neemuch and Indore in the east, and from Bikaner in the north to Surat and Veraval in the south. The following gives variation data for all divisions from the 2nd to the 5th, and shows the march of the low temperature area from the Satpuras to Gujarat, and the general rise of temperature over all parts of the Indian region except in the immediate neighbourhood of the storm's track:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	2nd Sept.	3rd Sept.	4th Sept.	5th Sept.
	°	°	°	°
Burma	−0·5	+1·1	+0·8	−0·7
Assam	+3·8	+3·1	+0·5	+1·2
Bengal	+0·8	+1·1	+2·3	+0·7
Orissa	−1·1	+1·0	+2·2	+3·4
Bihar	+1·1	+1·1	+2·9	+0·3
Chota Nagpur	−0·8	+0·6	+1·6	+1·4
United Provinces of Agra and Oudh.	+3·5	+3·1	+3·1	+1·9
N.-W. F. Province and Punjab	+2·8	+4·6	+4·6	+0·7
Sind	+3·3	+5·2	+3·6	−1·8
Rajputana	+4·1	+4·5	−1·6	−0·3
Gujarat	−2·7	−1·2	−5·0	−2·5
Central India	+1·6	−0·2	+1·1	+0·7
Central Provinces	−0·4	−1·0	+0·8	+0·7
Berar	−1·5	−1·9	−1·1	−0·1
West Coast	−0·2	+0·5	+1·0	+1·1
Bombay Deccan	−1·4	0	+0·2	+1·1
Mysore	−1·0	−0·8	−0·2	+1·2
Madras Coast	−1·6	+0·5	+1·1	+1·9
Madras Deccan	−1·1	+0·5	+1·9	+2·5
South India	−0·6	+1·1	+2	+2·7

On the 5th a fresh storm had appeared over the Bay. Light to moderate rain was falling over Burma where, as shown by the preceding table, a fall of temperature had commenced. The storm on this day lay apparently off the Ganjam and Orissa coasts, and there was scattered light rain over a large part of the country. On the 6th the storm lay between Balasore and False Point, and rain had extended and increased while temperature had fallen almost everywhere. On the Madras coast the sky was overcast and the day temperature largely below the average. The following gives comparative data:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 6th Sept.	Mean minimum temperature, 6th Sept.	Mean daily temperature, 6th Sept.
	°	°	°
Burma	−1·1	−0·1	−0·6
Assam	+0·3	−0·4	−0·1
Bengal	−0·7	0	−0·4
Orissa	+2·0	+1·2	+1·6
Bihar	+2·6	−1·8	+0·4
Chota Nagpur	−0·3	+0·4	+0·1
United Provinces of Agra and Oudh	−3·1	+0·2	−1·5
N. N. F. Province and Punjab	+0·3	+3·7	+2·0
Sind	−7·0	+1·0	−3·0
Rajputana	−1·3	+1·1	−0·1
Gujarat	−3·5	+0·9	−1·3
Central India	−5·8	+1·2	−2·3
Central Provinces	−4·0	+0·3	−1·9
Berar	−2·6	+1·1	−0·8
West Coast	−0·2	−0·4	−0·3
Bombay Deccan	+1·4	+1·6	+1·5
Mysore	−3·5	+0·2	−1·7
Madras Coast	−6·6	−1·6	−4·1
Madras Deccan	−4·0	+0·4	−1·8
South India	−0·5	−0·2	−0·4

In parts of North-West India, on the other hand, the night (5th to 6th) was very warm, and the minimum or night temperature was more than 4°·0 above the average at the following stations:—

Station.	Minimum temperature.		
	Actual, 6th Sept.	Normal, 6th Sept.	Variation of actual from normal, 6th Sept.
	°	°	°
Lahore	81·9	75·3	+6·6
Sialkot	81·1	76·1	+5·0
Sirsa	83·1	78·2	+4·9
Montgomery	83·5	78·9	+4·6
Khushab	83·3	78·7	+4·6

The reports of the morning of the 7th showed that the storm at the head of the Bay had hardly changed its position. Rain had been exceedingly general in Burma and Bengal but had been lighter and more scattered in other parts of the country. Temperature had risen and was above the normal over Baluchistan and the Punjab, and had also risen over the central parts of the country and the

Peninsula. By the morning of the 8th the storm from the Bay had advanced into Bengal and rain had become more general over India. Temperature had generally fallen and was considerably lower than usual over the Satpuras and north Madras, and over the Sub-Himalayan regions. On the other hand, temperature had continued to rise in the extreme north-west, and the mean temperature was more than 5° in excess at the stations for which comparative data are given below:—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 8th September 1902.
	°
Rawalpindi	+7·5
Peshawar	+7·3
Lahore	+6·4
Mooltan	+5·5
Montgomery	+5·2

The storm was advancing north-westward up the Gangetic Plain on the 9th, and rain was becoming concentrated over northern India. There had hence been a fall of temperature over northern India and a well-marked area of diminished temperature extended over the East Satpuras and the West Gangetic Plain. At the same time an independent but considerable fall of temperature was reported from parts of Assam, Burma and East Bengal. In parts of north-west India the mean temperature remained high, though less so than on the preceding day. On the 10th the storm was very shallow but continued to be shown over the Allahabad district. Rain continued in Burma and Bengal, and showers over the Peninsula and along the line of the Himalayas. Temperature had generally risen, but the area of deficient temperature, noticed over East Bengal, etc., on the 9th, had joined with that over the East Satpuras and the West Gangetic Plain, so that a large area of diminished temperature extended from Mymensingh westward to Lucknow and Cawnpore. In other parts of the country the mean temperature was generally excessive. On the 11th there was no important change to record, though the storm had moved westward to Agra. In the north-west dry area the weather had been fine; temperature had risen and was more than 5° in excess of the normal at the following stations:—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 11th September 1902.
	°
Mooltan	+8·7
Deesa	+7·0
Bikaner	+5·3

On the other hand, the area of diminished temperature extending from the Brahmaputra Valley to Oudh was as marked as on the previous day. On the 12th the rainfall had nearly ceased over Burma and Bengal while it had concentrated around the area of barometric depression near Agra; consequently, while temperature had risen over Bengal, etc., it had fallen over the west Gangetic Plain and was more than 5·0° below the normal at Bahraich and Mainpuri. On the 13th the storm was filling up and the rainfall becoming sporadic, but the depression of temperature in the Himalayan and west Gangetic Plain districts was even more strongly marked than on the 12th. Except in the above districts, the mean temperature on this day was generally normal or excessive. The following gives variation data from the 6th to the 13th:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of							
	6th Sept.	7th Sept.	8th Sept.	9th Sept.	10th Sept.	11th Sept.	12th Sept.	13th Sept.
	°	°	°	°	°	°	°	°
Burma	−0·6	−1·2	−1·3	−0·9	+0·4	−0·5	+0·9	+0·3
Assam	−0·1	−3·7	−2·3	−2·2	−0·9	−1·0	−0·2	−0·8
Bengal	−0·4	−0·6	−0·1	−3·1	−2·4	−1·2	+0·9	+0·5
Orissa	+1·6	−0·6	+0·4	−0·1	+0·7	+0·9	+0·6	+1·6
Bihar	+0·4	−0·9	−1·7	−0·9	−2·6	−3·0	−1·0	+1·0
Chota Nagpur	+0·1	+0·6	+0·3	+0·5	−0·7	−1·8	+0·4	+1·7
United Provinces	−1·5	−1·6	−2·1	−2·0	−1·6	−1·5	−2·8	−3·3
N.-W. F. Province and Punjab.	+2·0	+3·5	+3·8	+1·6	+1·8	+2·1	+1·0	−1·0
Sind	−3·0	−0·1	+0·8	+0·7	+0·2	+2·7	+4·6	+3·6
Rajputana	−0·1	+0·8	+0·9	+0·9	+3·4	+3·8	+3·3	+2·9
Gujarat	−1·3	+0·2	+0·1	0	+0·8	+1·9	+1·0	+0·4
Central India	−2·3	−1·1	−1·3	−1·3	+0·7	−0·8	−0·7	+1·1
Central Provinces	−1·9	+0·1	−2·0	−2·7	−0·1	+0·4	+0·4	+0·3
Berar	−0·8	+0·8	+0·1	+0·9	+1·9	+2·7	+2·8	+2·5
West Coast	−0·3	−0·2	−1·3	−1·3	−1·2	−1·2	−0·3	−0·6
Bombay Deccan	+1·5	+1·7	+1·2	+1·6	+1·2	+2·7	+2·5	+1·4
Mysore	−1·7	−2·4	−0·9	−2·1	−1·1	+0·1	+2·4	−0·3
Madras Coast	−4·1	−2·5	−0·2	+0·6	+1·7	+1·7	+1·4	+0·7
Madras Deccan	−1·8	−1·0	+0·6	0	+2·4	+2·4	+1·8	−0·8
South India	−0·4	−0·1	−1·1	+0·1	−0·3	+0·2	+1·4	+0·3

The above illustrates the appearance of low temperature areas one over the East Satpuras and another over Upper Burma and Assam on the 8th; their advance westward on the 9th; their juncture on the 10th; and the advance westward to the west Gangetic Plain during the 11th, 12th and 13th.

During the 14th and 15th there was not much change to record. Local rainfall in the Central Punjab considerably reduced temperature in that area and the mean tem-

perature was 5°·0 or more below the normal on those days at the following hill and plains stations:—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
14th September	Murree	−8·4
	Khushab	−7·3
	Cherat	−6·8
	Rawalpindi	−6·2
15th September	Murree	−7·8
	Khushab	−7·2
	Sialkot	−6·6
	Lahore	−6·6
	Cherat	−5·9

In addition the mean temperature on these two days was below the normal along the line of the Himalayas from Meerut to Sibsagar. The following gives comparative data for the Himalayan and Sub-Himalayan stations and the Brahmaputra Valley:—

Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	14th September.	15th September.
	°	°
Meerut	−0·1	+0·5
Bareilly	−4·2	−3·8?
Mainpuri	−4·0	−0·2
Lucknow	−4·5	−1·9
Bahraich	−3·7	−0·9
Gorakhpur	−4·7	−2·0
Darbhanga	−3·2	+0·6
Jalpaiguri	−2·3	−2·0
Dinajpur	−3·4	−6·3
Dhubri	−3·7	−2·6
Silchar	−2·5	+2·4
Sibsagar	+1·4	−3·5

On the 16th conditions became very unsettled over the Punjab and the surrounding mountain districts. Pressure changed rapidly and very irregularly, and thunder and dust storms occurred over Upper India, and moderately heavy snow over the mountain regions. This was followed by a marked fall of temperature, and lower temperatures than usual were recorded over the north-west of India from the 16th to the 20th. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of				
	16th September.	17th September.	18th September.	19th September.	20th September.
	°	°	°	°	°
N.-W. F. Province and Punjab	−0·3	−5·6	−4·8	−2·1	−0·4
Sind	+1·0	−0·4	−1·7	+2·0	+2·9
Rajputana	+4·6	+1·5	−0·5	−0·3	−1·4
Gujarat	+1·7	+1·9	−0·5	−0·2	−0·2

The coldest days were the 17th and 18th, when the following very low maxima and minima were recorded:—

Date.	Station.	Maximum temperature of date.	Variation from normal.	Station.	Minimum temperature of date.	Variation from normal.
		°	°		°	°
17th September.	Srinagar	59·4	−20·0	Murree	45·4	−13·4
	Sialkot	80·5	−15·8	Leh	31·5	−9·7
	Cherat	70·8	−15·1	Sialkot	65·6	−8·4
	Rawalpindi	80·9	−13·0	Cherat	57·5	−8·2
	Khushab	87·3	−12·7	Rawalpindi	63·1	−5·8
	D. I. Khan	88·3	−12·3	Lahore	67·4	−5·3
	Leh	58·6	−11·6	Bikaner	74·0	−5·3
18th September.	D. I. Khan	81·8	−18·8	D. I. Khan	69·1	−5·3
	Jacobabad	91·0	−12·6	Cherat	60·5	−5·0
	Mooltan	88·8	−11·6	Bikaner	74·5	−4·6
	Montgomery	91·0	−10·8	Rawalpindi	64·1	−4·5
	Lahore	88·4	−10·8	Srinagar	48·2	−4·3
	Srinagar	68·4	−10·6	Jacobabad	72·1	−3·4

This was the most considerable disturbance of temperature during the month, and it is interesting to note the extent of country over which the disturbance was felt. The following gives data for the stations around the north-west frontier of India and adjacent countries:—

Station.	Date.	Maximum.	Minimum.	Mean.	Remarks.
		°	°	°	
Chitral	16th	88·2	63·7	76·0	No rain.
	17th	82·1	55·0	68·6	
	18th	86·1	50·5	68·3	
Parachinar	16th	79·7	59·1	69·4	Showers up to 16th; then ceased.
	17th	67·7	50·4	59·1	
	18th	75·9	54·1	65·0	

STATION.	Date.	Maximum.	Minimum.	Mean.	REMARKS.
		°	°	°	
Gilgit	16th	82·9	61·5	72·2	No rain.
	17th	69·6	53·1	61·4	
	18th	79·2	56·5	67·9	
Kabul	16th	87·1	48·6	67·9	No rain.
	17th	76·2	44·4	60·3	
	18th	83·2	46·8	65·0	
Kalat	17th	81·9	30·0	56·0	No rain.
	18th	77·5	32·0	54·8	
	19th	83·9	31·4	57·7	
Kashgar	17th	83·1	50·3	66·7	Break in records from 13th to 16th; no rain.
	18th	74·1	49·3	61·7	
	19th	75·1	49·3	62·2	
	20th	78·1	57·8	68·0	
Muscat	18th	86·3	82·4	84·4	
	19th	84·8	80·1	82·5	
	20th	86·5	82·4	84·5	
Irkutsk	16th			40·6	7 A.M. temperature readings in degrees Fahrenheit.
	17th			34·3	
	18th			26·4	
	19th			27·7	
Tashkent	16th			54·1	
	17th			52·0	
	18th			54·0	
	19th			54·0	
Barnaul	16th			38·8	
	17th			35·6	
	18th			34·2	
	19th			51·3	
Omsk	16th			41·9	
	17th			41·0	
	18th			54·7	
	19th			42·8	
Tomsk	16th			32·9	
	17th			39·7	
	18th			45·0	
	19th			46·4	

The above shows that while the unsettled weather, rain and snow were confined to the north-west of India and the immediately adjacent hill districts, the consequent fall of temperature was observable as far as Muscat in the west and Kashgar in the north. It was only faintly reproduced in the Central Asian observatories. At Muscat and Perim the minimum temperature of the month was recorded on the 19th, but at Teheran and Baghdad there was no sign of a wave of cold at this time.

On the 17th a very shallow barometric depression was shown over the Central Provinces, and during the 16th and 17th a fresh depression was apparently developed over the Bay. Both depressions determined rain to their respective neighbourhoods, and in the case of the Bay depression this rainfall was accompanied with a fall of temperature along the Madras coast. On the 18th temperature was above the normal over North-East and Central India, and generally below elsewhere. The following gives comparative data for all divisions, except the north-western, for the 18th:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 18th September.	Mean minimum temperature, 18th September.	Mean daily temperature, 18th September.
	°	°	°
Burma	+2·3	+1·2	+1·8
Assam	+0·1	−0·1	0
Bengal	+1·0	+0·3	+0·7
Orissa	+2·0	+1·3	+1·7
Bihar	+0·2	−0·5	−0·1
Chota Nagpur	+1·4	+2·2	+1·8
Central India	−1·8	+2·4	+0·3
Central Provinces	−0·1	+0·5	+0·2
Berar	−0·8	+0·4	−0·2
West Coast	−0·7	+0·3	−0·2
Bombay Deccan	−4·0	+1·5	−1·3
Mysore	−2·6	+1·1	−0·8
Madras Coast	−0·9	−1·1	−1·0
Madras Deccan	−2·9	+1·1	−0·9
South India	−3·4	+2·0	−0·7

On the 19th, 20th, 21st and 22nd there was no important change over the Bay but rain continued along the Madras coast and the area of low temperature gradually increased and then decreased in intensity. The following gives comparative data for the Madras coast district from the 16th to the 22nd:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A. M. OF						
	16th September.	17th September.	18th September.	19th September.	20th September.	21st September.	22nd September.
	°	°	°	°	°	°	°
Madras Coast	+1·2	+0·1	−1·0	−1·3	−2·6	−1·7	−0·3

In the case of the Central Provinces' barometric depression, the storm was developed within an area of high temperature on the 17th, and moved westward towards an area of high temperature over Lower Sind. As the storm moved through Gujarat and the south of the North-West dry area on the 19th, 20th and 21st, rain set in over those

regions and was accompanied with a brisk fall of temperature. The following gives comparative data, day by day, from the 19th to the 22nd for Gujarat and the North-West dry area :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	19th September.	20th September.	21st September.	22nd September.
	°	°	°	°
N.-W. F. Province and Punjab .	—2·1	—0·4	—1·4	—1·9
Rajputana	—0·3	—1·4	—5·4	—4·7
Gujarat	—0·2	—0·2	—0·1	+0·3

Throughout this period the more central parts of the country were generally warmer than usual. This is shown below :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	19th September.	20th September.	21st September.	22nd September.
	°	°	°	°
Central India	+1·2	+1·8	+1·7	+0·3
Central Provinces . . .	+1·1	+1·8	+2·2	—0·2
Berar	+0·3	+1·4	+2·4	—0·5

On the 22nd a fresh barometric depression was shown over the Bay. This was accompanied with a general extension of rainfall over Burma, north Bengal and up the Gangetic Plain, and on the 23rd the mean temperature was falling generally. On the 24th the storm in the Bay was close to Saugor Island and moving north-north-westward. This direction it maintained until the 26th, when it had reached North Bihar. The storm gave heavy rain to Burma, Bengal and Bihar, and occasioned a rapid fall of temperature over that area where, prior to the storm's advance, higher temperatures than usual had prevailed. The following gives comparative data from the 23rd to the 27th :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	23rd September.	24th September.	25th September.	26th September.	27th September.
	°	°	°	°	°
Burma . .	—0·4	—0·8	—0·4	—0·2	—0·7
Assam . .	—1·4	+2·4	+1·7	—1·5	—1·4
Bengal . .	+0·4	+1·4	+0·4	—2·6	—0·9
Orissa . .	+3·0	+1·3	—4·8	—2·3	+1·3
Bihar . .	—1·3	—1·5	—0·1	—6·0	—5·4
Chota Nagpur . .	+2·8	+1·8	—0·8	—4·8	—2·1

Maxima or day temperatures more than 10°·0 below the normal were recorded at some places on the 26th and 27th. These are shown below :—

DATE.	STATION.	MAXIMUM TEMPERATURE.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
26th September	Purnea . . .	77·7	88·6	—10·9
	Chaibassa . .	78·6	89·5	—10·9
27th Do.	Patna . . .	79·0	89·8	—10·8
	Jalpaiguri . .	75·9	86·5	—10·6
	Darbhanga . .	77·7	88·1	—10·4

Over other parts of the country where north-westerly and northerly winds prevailed the weather was cooler than usual. The following gives comparative data for the remaining divisions :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF				
	23rd September.	24th September.	25th September.	26th September.	27th September.
	°	°	°	°	°
United Provinces of Agra and Oudh.	—1·1	—1·2	—0·9	—1·6	—2·7
N.-W. F. Frontier Province and Punjab.	—1·4	—1·2	—1·1	—0·9	—0·5
Sind	+0·2	—1·2	—1·1	—0·7	—0·5
Rajputana . . .	—2·1	—1·3	—2·1	—2·0	—2·9
Gujarat . . .	—0·2	—1·1	—2·1	—2·4	—2·6
Central India . .	—0·8	—1·8	—2·2	—3·0	—4·1
Central Provinces .	—1·3	—0·8	—1·2	—1·9	—2·1
Berar . . .	—1·4	0	+0·6	—0·5	—1·5
West Coast . .	+0·6	+0·3	+0·8	+0·5	—0·1
Bombay Deccan . .	+1·0	+0·9	+0·2	+0·6	+0·8
Mysore . . .	—0·1	—2·0	—0·5	—1·7	—0·3
Madras Coast . .	—0·1	—0·9	+0·4	+1·3	+1·3
Madras Deccan . .	+0·4	0	+1·1	+1·3	+0·9
South India . .	+1·4	+1·3	+1·0	+1·8	+0·6

During the last three days of the month a gradual but fairly general increase of temperature occurred, but it was practically only in the Madras districts that the mean temperature exceeded the normal. The following gives

comparative data for all divisions for the 28th, 29th and 30th :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	28th September.	29th September.	30th September.
	°	°	°
Burma	−1·3	−2·3	−2·0
Assam	−1·9	−2·7	−1·4
Bengal	−0·4	−1·1	−0·5
Orissa	+1·2	−0·5	+0·1
Bihar	−2·0	−2·5	−1·5
Chota Nagpur	−2·9	−1·9	−1·6
United Provinces of Agra and Oudh.	−2·7	−2·0	−1·7
Punjab	+0·1	+0·5	+0·8
Sind	−0·6	−0·3	−0·7
Rajputana	−2·1	−2·5	−2·2
Gujarat	−2·3	−2·3	−3·4
Central India	−4·2	−3·6	−2·6
Central Provinces	−2·6	−0·9	−1·9
Berar	−0·1	0	−3·5
West Coast	+0·2	−0·1	−0·1
Bombay Deccan	+1·1	+0·3	−1·9
Mysore	+0·5	0	+0·7
Madras Coast	+1·6	+1·8	+1·4
Madras Deccan	+2·0	−0·1	+0·3
South India	+0·7	+0·7	+1·1

At the Extra-Indian stations the variations of the mean temperature from the normal were irregular. At Zanzibar there was a considerable excess and at Perim a trifling excess, while at Aden and the Seychelles there was a slight defect. The following gives comparative data :—

STATION.	MEAN DAILY TEMPERATURE.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	°		°
Zanzibar	79·0	77·7	+1·3
Perim	89·6	89·0	+0·6
Aden	87·4	87·9	−0·5
Seychelles	78·4	79·0	−0·6

Winds.

The winds at Port Blair and Diamond Island were more westerly than the average on the mean of the month. They were likewise stronger in force and more steady than usual. This is shown below :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1902.	Normal percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Westerly deflection.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
				°	°				
Port Blair	90	74	+16	S 73 W	S 52 W	+21	336	228	+108
Diamond Island	68	55	+13	S 50 W	S 45 W	+ 5	232	182	+ 50

At Rangoon and Akyab, on the contrary, the direction was unusually easterly, though at both stations the steadiness was higher than usual. At Rangoon the velocity was less, and at Aykab greater, than the average. The following gives data :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1902.	Normal percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Easterly deflection.	Actual, September 1902.	Normal, September.	Variation of actual from normal September 1902.
				°	°				
Rangoon	50	49	+ 1	S 22 E	S 23 W	+45	34	89	−55
Akyab	67	42	+25	S 15 E	S 8 E	+ 7	85	74	+11

In Bengal and Orissa the wind's direction was approximately normal, though at Saugor Island the direction was a little from the east, instead of from the west of south. The following gives data :—

Station.	Mean wind direction.	
	Actual, September 1902.	Normal, September.
	°	°
Chittagong	S 9 E	S 22 E
Calcutta	S 25 E	S 23 E
Saugor Island	S 10 E	S 2 W
False Point	S 23 W	S 20 W

The steadiness was greater than usual except at False Point, while the velocity varied irregularly from the normal. This is shown below :—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, September 1902.	Normal percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Chittagong	40	37	+3	148	102	+46
Calcutta	46	42	+4	89	98	— 9
Saugor Island	53	49	+4	278	257	+21
False Point	33	37	− 4	178	205	−27

In the Gangetic Plain and Chota Nagpur the winds were fairly normal, except at Hazaribagh, where the wind was south-westerly instead of south-easterly. The wind was, however, lighter than usual at all the stations in this division.

The following gives data for Hazaribagh :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, September 1902.	Normal, September.	Actual, September 1902.	Normal, September	Variaiton of actual from normal, September 1902.
	°	°			
Hazaribagh	S 58 W	S 52 E	158	178	−20

In the lower part of the Upper Sub-Himalaya division the wind was unusually southerly and was light in force. This is shown below :—

Station.	Mean wind direction.			Mean wind velocity in miles per diem.		
	Actual, September 1902.	Normal, September.	Southerly deflection.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	°	°				
Dehra Dun	S 64 W	N 75 W	+41	18	25	— 7
Roorkee	S SE	S 14 W	+ 6	37	48	−11
Meerut	S 55 W	N 49 W	+76	26	46	−20

In the western half of the division, on the contrary, the wind direction was unusually westerly and was, on the whole, stronger and steadier than the normal. The following gives data for Lahore and Ludhiana :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, September 1902.	Normal percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
				°	°			
Lahore	20	7	+13	N 39 W	N 55 E	48	50	−2
Ludhiana	17	14	+ 3	N 82 W	N 44 W	40	31	+9

The winds in the Indus Valley and the North-West Frontier Province were very variable in direction and were lighter and less steady than usual. The following gives data :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, September 1902.	Normal percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
				°	°			
Peshawar	48	51	— 3	N 22 E	N 39 E	47	73	— 26
Jacobabad	12	45	−33	S 31 E	S 32 E	37	72	−35
Kurrachee	86	87	— 1	S 67 W	S 67 W	294	356	−62

The winds were also light in Rajputana, but were about normal in direction and steadiness.

The following table gives comparative data of the mean velocity and steadiness of the winds over the Bay Islands, Burma, and the different divisions of Northern India for the month :—

PROVINCE OR DIVISION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1902.	Normal, percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Bay Islands	90	74	+16	336	228	+108
Burma	62	49	+13	117	115	+ 2
Bengal	46	43	+ 3	172	152	+ 20
Bihar	38	49	−11	58	96	− 38
Chota Nagpur	13	10	+ 3	158	178	− 20
Orissa	33	37	− 4	178	205	− 27
United Provinces	16	15	+ 1	49	62	− 13
Punjab	28	24	+ 4	45	51	− 6
Rajputana	44	48	− 4	128	154	− 26
Sind	49	66	−17	166	214	− 48

On the whole the winds were lighter than usual over Northern India, but were a little stronger than usual around the Bay. The only important abnormal feature in the direction was the increased westing over the south-east of the Bay and in the Punjab.

Normal north-north-westerly winds prevailed in the Deccan. This is shown below :—

STATION.	MEAN WIND DIRECTION.	
	Actual, September 1902.	Normal, September.
	°	°
Belgaum	S 64 W	S 78 W
Sholapur	N 70 W	N 69 W
Akola	N 60 W	N 59 W
Buldana	N 63 W	N 47 W
Khandwa	N 67 W	N 66 W
Nagpur	N 50 W	N 52 W
Hyderabad (Deccan)	N 76 W	N 71 W

The steadiness was about the average but the velocity was low, except in the Bombay Deccan. The following gives comparative data :—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1902.	Normal, percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Belgaum	80	75	+ 5	402	385	+17
Sholapur	70	67	+ 3	304	245	+59
Akola	56	68	−12	116	155	−39
Buldana	68	68	0	167	200	−33
Khandwa	62	67	− 5	140	154	−14
Nagpur	47	37	+10	131	147	−16
Hyderabad (Deccan)	50	61	−11	124	150	−26

There was slightly more westing than usual in the winds along the West coast. The variation was, however, unimportant, as is shown by the following data :—

STATION.	MEAN WIND DIRECTION.		
	Actual, September 1902.	Normal, September.	Westerly deflection.
	°	°	
Bombay	W	N 84 W	+6
Karwar	S 84 W	N 80 W	+4

As in the Deccan, the winds in Southern India were nearly normal as regards direction and steadiness. They were, however, lighter than usual at some stations. The following gives data :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September.	Normal percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
				°	°			
Salem	48	69	−21	S 63 W	S 63 W	50	82	−32
Chitaldroog	85	78	+ 7	S 89 W	N 87 W	229	228	+ 1
Bangalore	78	84	− 6	S 81 W	S 85 W	197	167	+30
Hassan	85	79	+ 6	N 80 W	N 79 W	85	91	− 6
Mysore	77	68	+ 9	S 80 W	N 87 W	234	266	−32
Bellary	84	75	+ 9	N 77 W	N 78 W	228	223	+ 5
Madras	59	52	+ 7	S 61 W	S 36 W	131	149	−18

The following gives comparative data of the mean velocity and steadiness of the winds over the Peninsula :—

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, September 1902.	Normal percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Central Provinces	55	52	+ 3	136	151	—15
Berar	62	68	— 6	142	178	—36
Bombay Deccan	75	71	+ 4	353	315	+38
West Coast	68	65	+ 3	151	163	—12
Madras Deccan	67	68	— 1	176	187	—11
Mysore	81	77	+ 4	186	188	— 2
Madras Coast	59	52	+ 7	131	149	—18
South India	48	69	—21	50	82	—32

As is usual in September, the winds were very variable in direction at the Himalayan hill stations. At Srinagar, Simla and Ranikhet there was, as in the Punjab, some increased westing in the winds, and this increased westing extended eastward as far as Darjeeling, but at Leh the direction was less westerly than usual, while at Chakrata the wind was S. 14° E., and at Muktesar S. 29° E. The following gives data for the stations at which the wind was unusually westerly :—

Hill Station.	Mean wind direction.	
	Actual, September 1902.	Normal, September.
	°	°
Srinagar	N 38 W	N 24 W
Simla	N 14 W	N 13 E
Ranikhet	S 85 W	S 55 W
Katmandu	S 87 W	N 80 W
Darjeeling	S 52 W	S 58 E

The steadiness was generally greater than the average. This is shown below :—

Hill Station.	Mean steadiness.		
	Actual percentage, September 1902.	Normal percentage, September.	Variation of actual from normal, September 1902.
Leh	67	39	+28
Srinagar	20	12	+ 8
Kailang	60	61	— 1
Simla	25	30	— 5
Chakrata	63	37	+26
Ranikhet	47	37	+10
Katmandu	32	14	+18
Darjeeling	43	6	+37

At the central hill stations the direction of the wind was about normal, but the steadiness was generally less than usual, especially at Chikalda, where also the velocity varied largely from the normal. The following gives comparative data :—

Hill Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, September 1902.	Normal percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
				°	°			
Mount Abu	40	34	+ 6	S 79 W	S 73 W	193	183	+10
Pachmarhi	33	45	—12	N 53 W	N 59 W	165	145	+20
Chikalda	20	66	—46	N 46 W	N 23 W	193	244	—51

At the hill stations in the south the wind varied between north-west and west-north-west, and was hence more northerly than on the neighbouring plains (Salem), as is shown below :—

Station.	Mean wind direction.
	Actual, September 1902.
	°
Kodaikanal	N 48 W
Ootacamund	N 86 W

In the Gulf of Aden the winds varied irregularly from the normal. Thus at Aden the wind was more, and at Perim

less, easterly than the average. At Aden the steadiness of the wind was exactly the average, while at Perim the steadiness was little more than half the normal. At both stations the velocity of the wind was greater than usual. The following gives data for these two stations :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1902.	Normal percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Easterly deflection.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
				°	°				
Aden . .	50	50	0	S 42 E	S 23 E	+19	259	220	+39
Perim .	15	28	—13	N 9 E	N 42 E	—33	333	276	+57

In the South-East Trades region the winds were approximately normal in direction, but at Zanzibar both steadiness and velocity were in excess of the average. This is shown below :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, September 1902.	Normal percentage, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
				°	°			
Zanzibar . .	70	63	+7	S 10 E	S 8 E	145	138	+7
Seychelles . .	89	90	—1	S 42 E	S 41 E	291	292	—1

Humidity and Cloud.

The mean humidity conditions of the month differed generally by only small amounts from the normal. The air was damper than usual, *i.e.*, the absolute humidity was greater than usual over the whole country, but in Bengal and Burma the temperature was in excess so that, notwithstanding the excess of rainfall and of dampness in that area, there was some deficiency in the amount of the relative humidity. The greatest deficiency was in Lower Bengal, as shown by the stations of Saugor Island and Calcutta :—

STATION.	RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	%	%	
Saugor Island	83	86	—3
Calcutta	83	86	—3

A small area of normal or slightly deficient humidity was also shown over the Deccan, while in the neighbourhood of Karwar and generally in the Indus Valley the relative humidity was less than usual.

The air was damper than usual over the remainder of India, and the humidity excess was 5 or more in amount at Lahore and at one or two places in Mysore and Madras. The following gives data for the areas of greatest excess :—

STATION.	RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	%	%	
Lahore	64	57	+7
Madras	79	73	+6
Mysore	76	71	+5
Chitaldroog	74	69	+5

The following gives details of the different divisions. The absolute humidity was in excess over the Bay Islands and the Burma Coast, but the mean temperature was in some excess and the relative humidity was in defect, except at Port Blair. This is shown below :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Port Blair . . .	·906	·893	+·013	88	87	+1
Rangoon . . .	·901	·893	+·008	87	89	—2
Diamond Island . .	·879	·871	+·008	86	87	—1

In Bengal and Orissa similar conditions prevailed. The absolute humidity was everywhere in excess, but so

also was the temperature, and the relative humidity was in defect. The following gives data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Chittagong . .	·927	·916	+·011	86	86	0
Calcutta . .	·951	·943	+·008	83	86	—3
Saugor Island .	·932	·976	+·016	83	86	—3
False Point . .	·948	·929	+·019	82	84	—2

At all the stations in the Gangetic Plain and Chota Nagpur the mean absolute humidity was in considerable excess, and at Allahabad and Darbhanga, where the temperature was in defect, the relative humidity was also in excess, while at Hazaribagh, which shared in the excessive temperature over Bengal, the relative humidity was in defect. The following gives details for this area:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Allahabad . .	·922	·885	+·037	82	79	+3
Darbhanga . .	·938	·935	+·003	84	82	+2
Hazaribagh . .	·793	·754	+·039	82	84	—2

In the Upper Sub-Himalayas the mean absolute humidity was above the normal and the mean temperature generally low, so that the relative humidity was in excess. At Lahore the mean temperature was in local excess but the absolute humidity was as much as 0·051″ above the average, so that there, also, the relative humidity was excessive:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Dehra Dun . . .	·709	·698	+·011	79	78	+1
Roorkee . . .	·796	·768	+·028	76	72	+4
Meerut . . .	·787	·762	+·025	72	70	+2
Lahore . .	·765	·714	+·051	64	57	+7
Ludhiana . . .	·769	·755	+·014	69	66	+3

At Peshawar the absolute humidity was normal but the mean temperature was in ex ess, so that the relative humidity was in defect. At Kurrachee the absolute humidity was in considerable excess but the mean temperature was in large excess and the relative humidity consequently in slight defect. The following gives comparative data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Peshawar . .	·592	·592	0	52	54	—2
Kurrachee . .	·890	·841	+·049	76	77	—1

In east Rajputana the absolute humidity was in very large excess so that though the temperature was excessive the relative humidity was in excess. This is shown below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Jaipur . . .	·738	·683	+·055	67	64	+3
Deesa. . . .	·784	·723	+·061	69	66	+3

The following gives comparative humidity data for the Bay Islands, Burma, and the different divisions of northern India:—

PROVINCE OR DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Bay Islands . .	·906	·893	+·013	88	87	+1
Burma . . .	·890	·882	+·008	87	85	+2
Bengal . . .	·957	·945	+·012	84	86	—2
Bihar . . .	·938	·935	+·003	84	82	+2
Chota Nagpur .	·793	·754	+·039	82	84	—2
Orissa . . .	·948	·929	+·019	82	84	—2
United Provinces .	·804	·779	+·025	77	74	+3
N.-W. F. Province and Punjab.	·709	·687	+·022	62	59	+3
Sind . . .	·890	·841	+·049	76	77	—1
Rajputana . .	·761	·703	+·058	68	65	+3

In the Deccan the air was slightly damper than usual but the mean temperature was in excess, the variations at Sholapur, Akola and Buldana having been sufficient to produce normal or slightly deficient relative humidity values :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Belgaum . .	·679	·641	+·038	88	85	+3
Sholapur . .	·681	·662	+·019	70	70	0
Akola . . .	·767	·739	+·028	74	74	0
Buldana . .	682	680	+·002	77	78	−1
Khandwa . .	·772	·741	+·031	76	75	+1
Nagpur . .	·794	·767	+·027	77	75	+2

Along the West Coast the air was damper than the normal by small amounts and the relative humidity was in slight excess at Bombay and in slight defect at Karwar. This is shown below :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Bombay . .	·887	·865	+·022	87	85	+2
Karwar . . .	·820	·817	+·003	84	86	−2

In south India the absolute humidity was everywhere in excess while the variations of the mean temperature were slight and irregular so that the relative humidity was almost everywhere excessive. The following gives comparative data :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Salem . . .	·786	·746	+·040	74	72	+2
Chitaldroog . .	·636	·592	+·044	74	69	+5
Bangalore . .	·637	·603	+·034	79	76	+3
Hassan . . .	·608	·578	+·030	79	76	+3
Mysore . . .	·619	·595	+·024	76	71	+5
Madras . . .	·900	·823	+·077	79	73	+6
Bellary . . .	·662	·654	+·008	64	64	0

In Baluchistan the air was slightly drier than usual, and the mean temperature being above the average the mean relative humidity was below the normal—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Quetta . . .	·238	·252	−·014	37	39	−2

At the northern hill stations, as over the plains of India, the absolute humidity was almost everywhere in excess. The only exception was Simla where, perhaps owing to the prevailing north-north-west wind, the air was drier than usual. At all places except Darjeeling the relative humidity was excessive :—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Leh . . .	·192	·172	+·020	47	41	+6
Srinagar . .	·576	·493	+·083	84	78	+6
Kailang . .	·254	·245	+·009	61	59	+2
Simla . . .	·421	·441	−·020	80	78	+2
Chakrata . .	·481	·472	+·009	88	84	+4
Ranikhet . .	·517	·508	+·009	82	81	+1
Katmandu . .	·650	·631	+·019	82	79	+3
Darjeeling . .	·483	·478	+·005	93	94	−1

At the central hill stations the absolute humidity was greater than usual but the mean temperature was excessive and the relative humidity was normal or in only slight excess :—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Mount Abu . .	·565	·547	+·018	77	77	0
Pachmarhi . .	·654	·624	+·030	84	82	+2
Chikalda . .	·659	·629	+·030	89	89	0

In the South-East Trades region the absolute humidity was also excessive. At Zanzibar this was accompanied with a higher temperature than usual and the relative humidity was only 1% above the normal, while at the Seychelles it was accompanied with a lower temperature than the normal and the relative humidity variation was as much as +6%. Comparative data are given below :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	"	"	"	%	%	
Zanzibar . .	·765	·727	+·038	79	78	+1
Seychelles . .	·802	·753	+·049	81	75	+6

The above shows that practically all over the Indian region the air was much damper than the normal. The only exceptions were Peshawar, where the absolute humidity was normal; Quetta, where the deficiency was 0·014″; and Simla, where there was a local deficiency of 0·020″. This increased dampness of the air extended southward into the Equatorial regions and was as strongly marked at Zanzibar and the Seychelles as in India, while apparently the slight dryness observable in Baluchistan extended westward to Aden, at which station the air on the mean of the month was slightly drier than usual.

The increased dampness of the air was accompanied with a generally increased cloudiness. There were, however, two areas within which the sky was clearer than usual. One of these areas covered Sind, Gujarat, the Bombay coast, the Deccan and North Mysore; the second included the Burma coast district. The deficiency in the cloud amount in these two areas was greatest at Kurrachee and Rangoon respectively. The following gives data :—

Station.	Mean cloud amount.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Kurrachee	2·3	3·8	−1·5
Rangoon	7·6	8·2	−0·6

The increased cloudiness of the sky was in most marked excess in two areas, one covering eastern Rajputana, the south Gangetic Plain and parts of Central India and of the Central Provinces; the second covering parts of south Mysore and of south Madras. The largest variations in these two areas were shown at Allahabad and at Bangalore and Mysore respectively. The following gives data for these three stations :—

Station.	Mean cloud amount.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Allahabad	7·0	5·3	+1·7
Bangalore	7·7	6·3	+1·4
Mysore	9·0	7·6	+1·4

The mean cloud amount of the month was normal or in slight defect over the Bay Islands and the Burma coast. This is shown below :—

Station.	Mean cloud amount.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Port Blair	7·3	7·3	0
Rangoon	7·6	8·2	−0·6
Diamond Island . . .	7·0	7·5	−0·5

The cloud amount, on the mean of the month, was in excess over Bengal and Orissa. The following gives data :—

Station.	Mean cloud amount.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Chittagong	7·6	6·9	+0·7
Calcutta	7·8	7·3	+0·5
Saugor Island	7·5	7·1	+0·4
False Point	7·3	7·0	+0·3

Cloud was in excess over the Gangetic Plain and Chota Nagpur—more particularly at Allahabad where, as mentioned above, the maximum excess of the whole of India was recorded. The following gives data :—

Station.	Mean cloud amount.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Hazaribagh	8·6	8·0	+0·6
Darbhanga	6·1	5·3	+0·8
Allahabad	7·0	5·3	+1·7

Cloud was in trifling local defect at Ludhiana, but at the other stations in the Upper Sub-Himalayas division the cloud amount was in excess. This is shown below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Dehra Dun	5·8	4·8	+1·0
Meerut	4·1	3·7	+0·4
Roorkee	4·1	3·8	+0·3
Lahore	1·7	1·5	+0·2
Ludhiana	2·9	3·0	—0·1

At Kurrachee the maximum cloud deficiency was recorded, but in the upper part of the Indus Valley cloud was in excess of the normal. This is shown below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Peshawar	1·8	1·7	+0·1
Jacobabad	1·2	0·6	+0·6
Kurrachee	2·3	3·8	—1·5

Gujarat, like Lower Sind, had less cloud than usual, while eastern Rajputana, like the Punjab, and the Gangetic Plain, had more. The following gives comparative data for the stations representing Gujarat and East Rajputana :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Jaipur	5·1	4·0	+1·
Deesa	4·3	4·8	—0·5

In the Deccan, Nagpur and Sholapur had slightly less cloud than the average but all the remaining stations reported more, the excess at Khandwa having been considerable. Details are given below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Khandwa	6·9	5·5	+1·4
Buldana	7·5	6·6	+0·9
Belgaum	7·9	7·5	+0·4
Akola	6·9	6·6	+0·3
Hyderabad Deccan	6·6	6·3	+0·3
Nagpur	6·9	7·3	—0·4
Sholapur	7·7	8·0	—0·3

Along the West Coast the variations in the cloud amounts were small, Bombay exhibiting a slight defect and Karwar a slight excess. The following gives data :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Bombay	6·9	7·4	—0·5
Karwar	6·2	5·7	+0·5

In South India, except at Chitaldroog, Madras and Bellary, the sky was more cloudy than usual. At Bellary the deficiency, and at Salem, Bangalore and Mysore the excess, was considerable. This is shown below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Bangalore	7·7	6·3	+1·4
Mysore	9·0	7·6	+1·4
Salem	6·9	5·6	+1·3
Hassan	8·1	7·9	+0·2
Madras	6·1	6·1	0
Bellary	6·4	7·5	—1·1
Chitaldroog	7·4	7·7	—0·3

In the Kashmir Valley and at Leh, as well as locally at Darjeeling, the mean cloud amount was less than usual but at all the remaining hill stations in the Himalayas the

sky was more cloudy than the average. The following gives data:—

Hill Station.	Mean cloud amount.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Darjeeling	7·5	8·3	−0·8
Leh	3·5	4·1	−0·6
Srinagar	3·0	3·6	−0·6
Ranikhet	7·3	6·0	+1·3
Simla	6·8	5·8	+1·0
Chakrata	7·1	6·3	+0·8
Katmandu	7·0	6·3	+0·7
Kailang	5·3	4·8	+0·5

At the central hill stations the variations in the mean amount of cloud were unimportant. At Zanzibar there was a moderate excess, and at the Seychelles a trifling deficiency, in the cloud amount on the mean of the month. The following gives data:—

Station.	Mean cloud amount.		
	Actual September 1902.	Normal, September.	Variation of actual from normal, September 1902.
Zanzibar	5·8	4·8	+1·0
Seychelles	5·4	5·6	−0·2

Rainfall.

The general rainfall of India was in excess of the normal. The five cyclonic storms of the month affected the weather over India, and as most of these storms, though of slight or moderate intensity, were long-lived and travelled over a large extent of country, the weather over India was almost constantly under the influence of one or other of these depressions and was hence daily more or less unsettled and rainy. The winds accompanying these storms were generally moderately strong and there was on several occasions during the month a vigorous flow of air from the Bay and the Arabian Sea into the interior of the country where the winds, coming under the influence of the ascensional actions taking place around the storm areas, parted with their moisture in large quantities. This was more particularly the case in regard to Gujarat, Rajputana, and the Indus Valley in the case of the first and third storms of the month, and in regard to Bihar and north Bengal in the case of the fourth storm of the month. Another rather marked feature of the rainfall conditions of the month was the comparatively numerous instances of heavy local falls of rain occurring over areas or places where, so far as could be judged from the available data, the general conditions were relatively quiet and undisturbed. It will have been noticed in the humidity section that all over the country the actual amount of vapour present in the atmosphere was in excess of the normal, and apparently slight local disturbances caused local ascensional movements in this moist air and brought about the heavy localised rainfall here referred to. Instances of these actions were shown at Ludhiana on the 1st, when 4·36 inches of rain was measured; at Jalpaiguri on the 12th, when 6·01 inches was measured; at Sholapur on the 13th, when 5·69 inches was measured; at Ahmednagar on the 15th, when 5·86 inches was measured; at Raichur on the 16th, when 4·85 inches was measured; and at Jaipur on the 22nd, when 2·31 inches was measured.

The following gives a very brief statement of the principal periods of most general rainfall:—

1st.— The 1st to the 5th, when general rain fell except in parts of Upper India and Madras.

2nd.—The 6th to the 14th, when rain fell in almost all provinces except Sind, Rajputana, the south Punjab and south Madras.

3rd.—The 15th to the 17th, when rain fell over the Punjab and North-West Himalayas, and scattered showers over a large part of the country.

4th.—The 18th to 21st, when a depression gave rain to the Central Provinces, north Bombay, Gujarat and Rajputana.

5th.—The 22nd to 26th, when a storm gave heavy rain to north-east India and Burma.

6th.—The 28th to 30th, when a fresh storm over the Bay gave rain to Burma.

The average actual rainfall of the month was in excess of the normal (by 20 per cent. or more) in twenty six divisions, *viz.*: Upper Burma (+32 per cent.); Assam, Brahmaputra (+49 per cent.); Central Bengal (+24 per cent.); North Bengal (+58 per cent.); Bengal, Hills (+137 per cent.); Chota Nagpur (+43 per cent.); South Bihar (+53 per cent.); North Bihar (+45 per cent.); United Provinces, East (+58 per cent.); South Oudh (+49 per cent.; North Oudh (+34 per cent.); United Provinces, Central (+48 per cent.); United Provinces, East Submontane (+32 per cent.); Central Punjab (+30 per cent.); North Punjab (+30 per cent.); Malabar (+158 per cent.); Konkan (+79 per cent.); Central Provinces Central (+21 per cent.); Gujarat (+95 per cent.); Kathiawar and Cutch (+83 per cent.); Sind (+579 per cent.); Baluchistan, Hills (+362 per cent.); Central India, East (+32 per cent.); Rajputana, East, and

Central India, West (+23 per cent.); Madras, Central (+23 per cent.) ; and East Coast, Central (+28 per cent.).

It was normal, *i.e.*, varied by less than 20 per cent. from the normal, in twenty divisions, *viz.*: Tenasserim (+9 per cent.); Lower Burma, Deltaic (—6 per cent.); Central Burma (+10 per cent.); Arakan (+15 per cent.); Eastern Bengal (+13 per cent.); Assam, Surma (—7 per cent.); Assam, Hills (—2 per cent.); Deltaic Bengal (—3 per cent.); United Provinces, West Submontane (—6 per cent.); United Provinces, Hills (+16 per cent.); Punjab, Submontane (—9 per cent.); Punjab, Hills (—7 per cent.); West Punjab (+19 per cent.); Mysore (+11 per cent.); Bombay Deccan (—16 per cent.); Khandesh (+5 per cent.); Central Provinces, East (—11 per cent.); West Rajputana (—4 per cent.); East Coast, North (+4 per cent.); and East Coast, South (+4 per cent.) ; and was in defect over the remainder of India, *viz.*, in the following eight divisions : Orissa (—33 per cent.); United Provinces, West (—21 per cent.); South-East Punjab (—25 per cent.); South Punjab (—38 per cent.); Madras, South-Central (—35 per cent.); Berar (—32 per cent.); Central Provinces, West (—22 per cent.); and Madras, South (—21 per cent.).

The relative excess was thus greatest and more than 100% in the Bengal hills, Malabar, Sind and Baluchistan while the relative deficiency was greatest and more than 30% in Orissa, the South Punjab, South Central Madras and Berar. Rain fell in all divisions of India during the month but was less than one inch in the West Punjab and the Baluchistan hills. From this area, the rainfall increased in all directions and was heaviest, amounting to 41 inches, in the Bengal hills.

The total rainfall of the month was generally in excess of the normal, as is shown by the following comparative data for the different divisions:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, September 1902.	Average normal, September.	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.
				Inches	Inches.	Inches.
Burma	Tenasserim	23·7	22·8	33·52	30·66	+2·86
	Lower Burma (Deltaic)	19·7	19·6	14·70	15·67	−0·97
	Central do.	16·1	14·0	9·53	8·64	+0·89
	Upper do.	12·7	10·0	9·89	7·48	+2·41
	Arakan	19·6	18·6	22·22	19·24	+2·98
Bengal and Assam	Eastern Bengal	14·3	13·3	12·98	11·52	+1·46
	Assam (Surma)	17·3	15·5	14·96	16·02	−1·06
	Do. (Hills)	19·2	17·0	17·81	18·11	−0·30
	Do. (Brahmaputra)	18·0	12·9	16·78	11·25	+5·53
	Deltaic Bengal	12·0	11·7	8·99	9·26	−0·27
	Central do.	13·0	11·6	12·62	10·21	+2·41
	North do.	18·0	13·5	28·11	17·76	+10·35
	Bengal Hills	21·3	16·6	41·39	17·49	+23·90
	Orissa	9·9	12·2	6·79	10·07	−3·28
	Chota Nagpur	12·0	10·4	11·85	8·27	+3·58
	Bihar (South)	13·4	8·7	11·46	7·50	+3·96
	Do. (North)	13·2	9·4	15·16	10·45	+4·71
United Provinces of Agra and Oudh.	United Provinces (East)	12·4	8·0	10·76	6·79	+3·97
	Oudh (South)	10·4	7·3	9·62	6·46	+3·16
	Do. (North)	10·2	7·2	9·95	7·40	+2·55
	United Provinces (Central)	9·1	6·6	8·21	5·53	+2·68
	Do. do. (West)	6·0	4·7	3·42	4·31	−0·89
	Do. do. (Submontane, East)	11·6	7·7	10·62	8·05	+2·57
	Do. do. (Do. West)	7·3	6·3	6·52	6·91	−0·39
	Do. do. (Hills)	11·3	8·8	9·12	7·83	+1·29
Punjab and North-West Frontier Province.	Punjab (South-East)	4·3	3·6	2·88	3·82	−0·94
	Do. (South)	2·4	2·9	1·46	2·36	−0·90
	Do. (Central)	3·6	2·4	2·50	1·92	+0·58
	Do. (Submontane)	4·1	3·6	3·28	3·60	−0·32
	Do. (Hills)	7·6	6·6	5·63	6·07	−0·44
	Do. (North)	3·7	2·9	2·57	1·98	+0·59
	Do. (West)	1·5	1·1	0·92	0·77	+0·15

Province.	Division.	Number of rainy days. Average actual, September 1902.	Number of rainy days. Average normal, September.	Rainfall. Average actual, September 1902.	Rainfall. Average normal, September.	Rainfall. Variation of actual from normal, September 1902.
				Inches.	Inches.	Inches.
Bombay and Malabar Coast Districts (Madras).	Malabar	20·0	14·0	24·04	9·30	+14·74
	Travancore	14·5		14·23		
	Madras (South-Central)	5·0	6·6	3·00	4·63	−1·63
	Coorg	16·5		13·44		
	Mysore	8·6	7·4	5·37	4·82	+0·55
	Konkan	19·8	16·0	24·22	13·50	+10·72
	Bombay Deccan	8·2	8·6	4·93	5·90	−0·97
	Khandesh	9·9	8·9	6·91	6·59	+0·32
Central Provinces and Berar.	Berar	7·2	8·0	4·01	5·94	−1·93
	Central Provinces (West)	9·2	9·8	6·73	8·63	−1·90
	Do. do. (Central)	10·2	10·0	9·81	8·11	+1·70
	Do. do. (East)	9·3	9·9	6·91	7·75	−0·84
Bombay (North)	Gujarat	12·3	7·4	12·87	6·61	+6·26
	Kathiawar and Cutch	8·2	5·0	8·08	4·41	+3·67
	Sind	2·5	0·7	3·19	0·47	+2·72
	Baluchistan Hills	0·8	0·3	0·60	0·13	+0·47
Rajputana and Central India.	Central India (East)	10·1	7·6	7·92	6·02	+1·90
	Rajputana (East), Central India (West)	6·6	5·0	4·96	4·03	+0·93
	Rajputana West	3·6	2·3	1·96	2·05	−0·09
Madras	East Coast (North)	11·2	10·0	7·92	7·59	+0·33
	Madras (Central)	9·4	7·5	6·53	5·30	+1·23
	East Coast (Central)	9·3	6·8	5·68	4·43	+1·25
	East Coast (South)	7·7	6·8	5·57	5·34	+0·23
	Madras (South)	3·2	3·5	1·70	2·15	−0·45

The province of Burma was largely affected by the different depressions or cyclonic storms of the month, and this area received rain almost daily, though there were partial breaks between the 12th and the 18th, and between the 27th and the 29th in the inland districts of the province. On some days the rainfall was heavy and the following falls exceeding 5 inches in 24 hours were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tavoy	Launglon	3rd September	5·92
	Tavoy	4th "	12·72
Lower Chindwin	Pale	" "	5·76
Upper "	Homalin	6th "	8·78
	"	7th "	7·36
	Paungbyin	" "	7·03
	Tamu	" "	6·80
Akyab	Maungdaw	7th September	5·70
Upper Chindwin	Maingkaing	" "	5·50
Akyab	Maungdaw	8th "	6·65
Upper Chindwin	Tamu	" "	6·50
Arakan Hill Tracts	Paletwa	" "	5·89
Akyab	Rathedaung	" "	5·47
	Pabru	9th "	5·76
Toungoo	Kyaukkyi	12th "	5·46
Tavoy	Launglon	21st "	7·76
Thongwa	Danubyu	" "	5·10
Amherst	Amherst	22nd "	9·10
	Moulmein	" "	7·60
Tavoy	Tavoy	" "	5·10
Yamethin	Pyawbwe	23rd "	5·93
Upper Chindwin	Tamu	24th "	6·50

These falls, it will be observed, occurring principally from the 4th to the 8th and the 22nd to the 24th, coincided roughly with the initial stages of the various cyclonic storms of the Bay. The rainfall of the month was generally in excess of the normal, as is shown by the following table which gives comparative data for the five divisions of Burma :—

DIVISION.	RAINFALL.				NUMBER OF RAINY DAYS.	
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.	Average actual, September 1902.	Average normal, September.
	Inches.	Inches.	Inches.			
Tenasserim . . .	33·52	30·66	+2·86	+ 9	23·7	22·8
Lower Burma (Deltaic)	14·70	15·67	—0·97	— 6	19·7	19·6
Central Burma . .	9·53	8·64	+0·89	+10	16·1	14·0
Upper „ . .	9·89	7·48	+2·41	+32	12·7	10·0
Arakan . . .	22·22	19·24	+2·98	+15	19·6	18·6

In Assam the weather was comparatively dry during the 1st, 2nd and 3rd, from the 16th to the 18th or 19th, and from the 22nd to the 24th. These periods generally agreed with the passage of a cyclonic storm across the Orissa Coast, so that north-east winds prevailed in Assam and only showery weather was experienced. At all other times rainy, unsettled weather prevailed over the province.

The Surma Valley received moderately heavy rain between the 6th and the 8th, on the 14th and 15th, and between the 25th and the 29th. The following gives the falls exceeding 4 inches in 24 hours :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
SYLHET . . .	Sunamganj . . .	13th Sept .	4·50
	Lalakhal . . .	14th „ .	6·25
	Sunamganj . . .	„ „ .	6·13
	Sylhet	„ „ .	4·54
	„ . . .	28th „ .	4·60
	Lalakhal . . .	29th „ .	5·70
CACHAR . . .	Nemotha . . .	„ „ .	4·80

In the Assam Hills the rainfall conditions were generally similar to those in the Surma Valley. The heaviest rainfall was reported on the 9th, on the 12th and 13th, and on the 26th and 27th. The following gives the falls exceeding 5 inches in this area :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
KHASI AND JAINTIA HILLS.	Cherra Poonjee Police Station.	13th Sept. .	8·87
	Wahmaulien . .	„ „ .	6·84
	Laitlyngkat . .	27th „ .	6·25
	Mauphlang . .	„ „ .	5·39

The rainfall of the Brahmaputra valley occurred under somewhat different conditions from that in the Surma valley. The first twenty days of the month were very wet and unsettled, while the last ten were relatively fine the Bihar storm having affected the weather only slightly in this valley. The heaviest rainfall was generally recorded between the 3rd and the 7th, while only a few heavy falls were registered between the 24th and the 29th. The following were the amounts exceeding 5 inches in 24 hours recorded in this division :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
SIBSAGAR . . .	Sibsagar . . .	3rd Sept.	7·18
	Atabari . . .	„ „ .	6·32
NOWGONG . . .	Keliden . . .	6th „ .	7·35
LAKHIMPUR . .	Dhakuakhana . .	15th „ .	5·50
	Harmati . . .	18th „ .	5·47
GOALPARA . . .	Marnai . . .	20th „ .	8·85
KAMRUP . . .	Barpeta . . .	22nd „ .	5·84
GOALPARA . . .	Dhubri	27th „ .	5·14

The rainfall of the month was about normal in the Hills and Surma divisions, but was nearly 50% above the average in the Brahmaputra division. This is shown by the following comparative statement for the eight plains districts of Assam :—

DISTRICT.	RAINFALL.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal. September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	13·36	15·34	— 1·98	—13
Sylhet	17·06	16·69	+ 0·37	+ 2
Goalpara . . .	30·71	16·67	+14·04	+84
Kamrup . . .	12·41	8·63	+ 3·78	+44
Darrang . . .	14·03	10·61	+ 3·42	+32
Nowgong . .	15·25	10·18	+ 5·07	+50
Sibsagar . . .	15·05	10·41	+ 4·64	+45
Lakhimpur . . .	22·16	13·89	+ 8·27	+60

The rainfall of Bengal was largely determined by the first four cyclonic storms of the Bay, and was hence most marked between the 1st and 2nd, the 5th and 12th, the 15th and 16th, and the 22nd and 27th. The fourth storm was that which was most strictly confined to the province of Bengal and on the whole occasioned the heaviest and most general rainfall, but on the 15th and 16th, when the third storm of the month lay over the south Gangetic Plain, there occurred a vigorous flow of air from the head of the Bay into Bengal, and heavy rain was received in north Bengal.

In south-west Bengal moderate general rain was received from the 1st to the 3rd, due to the first cyclonic storm which was close to the Orissa coast on the morning of the 1st. On the 4th and 5th, when the second storm was forming over the Bay, the rainfall was light. On the 6th, when the storm was approaching the coast, the rainfall increased and from the 7th to the 10th was general, and in Birbhum, Murshidabad and Jessore was heavy. The following were the falls exceeding 5 inches in 24 hours reported at this time :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Murshidabad	Lalbagh	8th Sept.	5·50
Jessore	Magura	9th ,,	8·90
Jessore	Jhenida	,, ,,	7·32
Birbhum	Murari	10th ,,	16·60

On the 11th rain took off and, except for a slight increase about the 16th and 17th, remained light until the 23rd. On the 24th the fourth storm of the month was approaching the Bengal coast and moderate rain prevailed generally on the 25th and 26th. The falls were not heavy, and only exceeded 3 inches in 24 hours at the following places :—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 25th September 1902.
		Inches.
Murshidabad	Jangipur	4·25
Jessore	Magura	3·82
Murshidabad	Akriganj	3·77
Murshidabad	Lalbagh	3·70
Birbhum	Murari	3·69
Murshidabad	Lalgola	3·30
Khulna	Mollahat	3·25

After the 26th the rainfall practically ceased. The following gives comparative rainfall data for the different districts in this division :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burdwan	8·34	8·40	—0·06	— 1
Birbhum	15·65	10·97	+4·68	+43
Bankura	6·24	8·70	—2·46	—28
Midnapore	6·74	9·69	—2·95	—30
Hooghly	9·02	8·85	+0·17	+ 2
Howrah	5·90	9·45	—3·55	—38
24-Parganas	9·08	10·04	—0·96	—10
Calcutta	6·98	10·40	—3·42	—33
Nadia	9·41	8·48	+0·93	+11
Murshidabad	14·01	9·35	+4·66	+50
Jessore	12·32	8·45	+3·87	+46
Khulna	9·73	9·55	+0·18	+ 2

North Bengal received very little rain during the first four days of the month as this division lay outside the area affected by the first storm, but on the 5th rain commenced to fall generally and continued more or less up to the 28th when, after the filling up of the Bihar storm, the weather cleared. Rain was heavy and general between the 5th and the 13th during which period the following falls exceeding 5 inches in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Darjeeling	Kurseong	10th Sept.	7·27
Darjeeling	Mongpoo	11th ,,	5·76
Jalpaiguri	Jalpaiguri	12th ,,	6·43
Cooch Behar	Cooch Behar	13th ,,	7·23
Jalpaiguri	Jalpaiguri	,, ,,	5·41
Bogra	Sherpur	,, ,,	5·31

It was again heavy on the 15th and 16th when the following were the falls exceeding 5 inches in 24 hours :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jalpaiguri	Bhagatpur	15th Sept.	8·90
Jalpaiguri	Buxa	,, ,,	8·50
Dinajpur	Dinajpur	,, ,,	7·46
Dinajpur	Ramganj	,, ,,	5·06

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Darjeeling	Kurseong	5th September	5·06
	Kalimpong	" "	5·04
Jalpaiguri	Bhagatpur	16th "	8·20
Darjeeling	Kurseong	" "	7·82
	Mongpoo	" "	5·80

There occurred some falling off in the rainfall between the 17th and the 19th, but between the 20th and the 22nd, and again between the 25th and the 27th, the rainfall over this division was heavy and general. The heaviest rainfall of the month was recorded on the 27th when the Bihar storm was filling up. The following gives data of those falls exceeding 5 inches in 24 hours, which were measured between the 20th and 27th :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Darjeeling	Siliguri	20th Sept.	5·90
Jalpaiguri	Alipur Duar	" "	5·40
Dinajpur	Thakurgaon	21st "	7·64
Darjeeling	Siliguri	" "	6·92
Cooch Behar	Cooch Behar	" "	5·85
Jalpaiguri	Kalchini	26th "	5·74
Pabna	Sirajganj	" "	5·08
Darjeeling	Mongpoo	27th "	14·87
	Darjeeling	" "	12·20
	Kalimpong	" "	11·68
	Kurseong	" "	11·45
	Pedong	" "	7·97
Cooch Behar	Cooch Behar	" "	7·77
Jalpaiguri	Bhagatpur	" "	7·12
Cooch Behar	Mickliganj	" "	6·90
	Fulbari	" "	6·60
Dinajpur	Atwari	" "	6·42
Jalpaiguri	Jalpaiguri	" "	6·27
	Baxa	" "	5·88
Darjeeling	Siliguri	" "	5·56
Rangpur	Kurigaon	" "	5·40
Cooch Behar	Matabhanga	" "	5·35
Rangpur	Rangpur	" "	5·10
Cooch Behar	Dinhatta	" "	5·03

The following gives comparative data for the different districts in this division :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rajshahi	12·43	10·50	+ 1·93	+ 18
Dinajpur	18·33	13·03	+ 5·30	+ 41
Jalpaiguri	43·92	23·00	+20·92	+ 91
Darjeeling	45·90	19·29	+26·61	+138
Cooch Behar	39·41	21·60	+17·81	+ 82
Rangpur	20·10	14·10	+ 6·00	+ 43
Bogra	16·87	10·95	+ 5·92	+ 54
Pabna	15·50	9·49	+ 6·01	+ 63

In the Dacca division of east Bengal there occurred a fairly fine period between the 17th and the 23rd, *i.e.*, during the development of the fourth storm over the Bay, and the weather was also fine on the 29th and 30th, but during the remainder of the month moderate general rain was received. The Chittagong division received a burst of heavyish rain between the 5th and the 10th and another between the 26th and the 28th, the remainder of the month having been fairly fine with passing showers. The rainfall of this division was hence about normal. and the individual falls of rain were less heavy than in other parts of the province. The following gives the only amounts exceeding 5 inches in 24 hours reported during the month in this division :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Noakhali	Hatya	8th Sept.	5·48
Chittagong	Kutubdia	9th "	7·96
	Cox's Bazar	" "	6·79
Backergunge	Gaurnadi	" "	5·22
Noakhali	Chhagalnaya	28th "	9·04
	Fenny	" "	5·50
Chittagong	Mirsarai	" "	5·47

There was general rain in Bihar on the 6th, but with this exception the weather was generally only showery up to the 8th. On the 9th heavy rain commenced and continued until the 15th, coinciding with the second storm

of the month, and during these seven days the following falls exceeding 4″ in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
Gaya	Deo	9th Sept.	6·90
Sonthal Parganas	Naya Dumka	,, ,,	6·64
	Katikund	,, ,,	6·52
Gaya	Aurangabad	,, ,,	6·24
Sonthal Parganas	Nanihat	,, ,,	4·50
	Jamtara	,, ,,	4·32
	Hiranpur	,, ,,	4·30
	Pakaur	,, ,,	4·22
Bhagalpur	Madhipura	10th ,,	4·02
Patna	Patna	11th ,,	7·93
Darbhanga	Tajpur	12th ,,	5·93
Saran	Bhoreh	13th ,,	6·00
	Sripur	,, ,,	4·66

From the 16th to the 23rd the weather was again very showery though the falls of rain were not generally heavy, but on the 24th rain recommenced heavily, and on the mornings of the 25th and 26th the following amounts exceeding 5″ in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
Muzaffarpur	Mahua	25th Sept.	5·82
Bhagalpur	Sapaul	26th ,,	7·92
Monghyr	Jamalpur	,, ,,	5·63
Patna	Barh	,, ,,	5·60
Monghyr	Begusarai	,,	5·51
Darbhanga	Darbhanga	,, ,,	5·46
Muzaffarpur	Muzaffarpur	,, ,,	5·05

The last three days of the month, after the fourth storm had filled up, were rainless but the general rainfall of the whole division for the whole month was practically 50 per cent. heavier than usual. The following gives comparative data for the different districts in this division :—

District.	Rainfall			
	Average actual, Sept. 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Patna	12·70	7·20	+5·50	+76
Gaya	11·07	6·55	+4·52	+69
Shahabad	10·33	6·86	+3·47	+51
Saran	13·07	8·20	+4·87	+59
Champaran	13·70	9·93	+3·77	+38
Muzaffarpur	12·64	8·17	+4·47	+55
Darbhanga	19·27	10·06	+9·21	+92
Monghyr	11·70	9·57	+2·13	+22
Bhagalpur	18·33	10·19	+8·14	+80
Purnea	17·24	15·43	+1·81	+12
Malda	12·00	11·54	+0·46	+4
Sonthal Parganas	14·36	11·10	+3·26	+29

Orissa received general rain during the 1st and 2nd from the first cyclonic storm, but the amounts were in no way remarkable. From the 3rd to the close of the month the weather was showery, the rainfall increasing temporarily, both in amount and extent on the 7th, the 11th and 12th, and on the 24th and 25th. Notwithstanding that two, at least, of the cyclonic storms of the month passed through or close to the province, the only falls exceeding 3″ in 24 hours were as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
Puri	Puri	1st Sept.	3·94
Cuttack	Jajpur	5th ,,	4·33
Angul	Angul	7th ,,	4·00
	Baramba	,, ,,	3·64
Puri	Khurda	,, ,,	3·20
Balasore	Baripada	25th ,,	3·75
	Jellasore	,, ,,	3·45

And the general rainfall of the division was 30 per cent. less than the average. The following gives comparative data for the districts in this division :—

DISTRICT.	RAINFALL. Average actual, Sept. 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuttack . . .	7·50	10·19	—2·69	—26
Balasore . . .	7·50	11·23	—3·73	—33
Puri	6·88	9·89	—3·01	—30

In Chota Nagpur the weather was very showery from the 1st to 10th; rather showery and unsettled from the 11th to the 24th; rainy on the 25th and 26th and fine from the 27th to the end of the month. The only heavy falls of rain were reported on the 25th and 26th when the fourth storm was passing over part of the division. On this occasion the following falls exceeding 5″ in 24 hours were recorded :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
MANBHUM . .	Chas	25th Sept.	7·15
	Jhalda	26th ,,	8·05
	Purulia . . .	,, ,,	7·15
HAZARIBAGH . .	Kharagdiha . . .	,, ,,	5·12

The following gives comparative data for the districts in this division :—

DISTRICT.	RAINFALL. Average actual, Sept. 1902.	Average normal, Sept.	Variation of actual from normal, Sept. 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hazaribagh . .	13·51	8·37	+5·14	+61
Ranchi	10·58	8·30	+2·28	+27
Palamau . . .	12·65	7·65	+5·00	+65
Manbhum . . .	14·89	8·36	+6·53	+78
Singbhum . . .	9·55	8·17	+1·38	+17

In the United Provinces the rainfall was generally similar to that in Chota Nagpur. The weather was fairly fine from the 1st to the 4th. On the 5th rain commenced and lasted till the 14th or 15th, after which there occurred another fine to showery period continuing up to the 22nd, when another burst of general rain was reported. From the 27th to the 30th the weather was fine. The heaviest rainfall of the month occurred under the influence of the second storm of the month and its shallow residual continuation, and hence occurred between the 8th and the 13th.

In Oudh the weather was fine till the 4th. Rain then set in and continued till the 14th, the heaviest falls having been reported towards the close of the period. Amounts exceeding 4″ in 24 hours were measured at the following places on the following dates :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
GONDA . . .	Gonda	5th Sept.	5·26
FYZABAD . . .	Bikapur . . .	9th ,,	5·75
SULTANPUR . .	Kadipur . . .	12th ,,	5·75
BAHRAICH . .	Kaisargani . . .	,, ,,	4·30
	,, . . .	13th ,,	6·25
	Bahraich . . .	,, ,,	5·68
RAE BARELI . .	Salon	,, ,,	5·00
SITAPUR . . .	Biswan . . .	,, ,,	4·32
FYZABAD . . .	Tanda	,, ,,	4·10

From the 15th to the 21st the weather was fairly fine, but on the 22nd general but light rain recommenced and continued during the following day. From the 24th to the close of the month fine weather prevailed.

The following gives comparative data for the districts in this division :—

DISTRICT.	RAINFALL. Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 19_02.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Fyzabad	11·43	7·65	+3·78	+ 49
Gonda	8·28	7·61	+0·67	+ 9
Bara Banki	9·62	7·41	+2·21	+ 30
Bahraich	13·39	7·71	+5·68	+ 74
Sitapur	9·94	6·38	+3·56	+ 56
Kheri	6·16	7·84	—1·68	— 21
Sultanpur	12·64	7·71	+4·93	+ 64
Partabgarh	11·51	6·56	+4·95	+ 75
Rae Bareli	10·46	6·88	+3·58	+ 52
Unao	8·20	5·44	+2·76	+ 51
Lucknow	7·58	6·12	+1·46	+ 24
Hardoi	7·27	5·98	+1·29	+ 22

In the south-east of the United Provinces the weather was very showery until the 16th. It then cleared somewhat and, with the exception of the 19th, 23rd and 26th, when rain became temporarily general, was again fairly fine till the close of the month. There were no very heavy falls of rain in this division, but the total rainfall was considerably in excess of the normal average.

The following gives comparative data for the districts in this division :—

District.	Rainfall. Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ghazipur	13·31	6·60	+6·71	+102
Benares	8·16	6·71	+1·45	+ 22
Jaunpur	13·04	7·57	+5·47	+ 72
Mirzapur	12·13	7·08	+5·05	+ 71
Allahabad	8·31	6·29	+2·02	+ 32

In the central division of the United Provinces there were three bursts of rain during the month. The first occurred between the 5th and 8th, the second on the 11th, 12th and 13th, and the third on the 22nd and 23rd. The most important of these was that on the 11th, 12th and 13th, when the shallow residual depression of the second storm lay over the United Provinces and when the following falls exceeding 5 inches in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Cawnpore	Bhagnipur	11th Sept.	10·48
Hamirpur	Hamirpur	,, ,,	8·50
Cawnpore	Derapur	,, ,,	8·00
Jalaun	Kalpi	,, ,,	5·41
Cawnpore	Akbarpur	,, ,,	5·06
Etawah	Auraiya	,, ,,	5·02
Jalaun	Orai	12th ,,	5·14

The following gives comparative data of the different districts in this division and shows that the month's rainfall was irregularly distributed, but was 57 °/₀ heavier than usual on the mean of the whole :—

District.	Rainfall. Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Banda	9·02	6·36	+2·66	+ 42
Fatehpur	10·68	5·25	+5·43	+103
Hamirpur	5·68	6·06	−0·38	− 6
Cawnpore	11·55	5·12	+6·43	+126
Jalaun	8·83	4·75	+4·08	+ 86
Etawah	11·14	5·17	+5·97	+115
Farukhabad	7·91	5·40	+2·51	+ 46
Mainpuri	6·83	5·24	+1·59	+ 30
Etah	3·87	5·03	−1·16	− 23

The west division of the United Provinces had two periods of general rain, the first extending from the 6th to the 14th, the second on the 21st and 22nd. During the first period there were a few instances of heavy falls, as is shown by the following table giving the amounts exceeding 3 inches in 24 hours, but the rainfall in this division was neither so extensive nor so heavy as in the central division :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Meerut	Mawana	7th Sept.	5·54
Jhansi	Mahroni	8th ,,	3·15
Jhansi	Mau	10th ,,	4·50
Jhansi	Pachwara	,, ,,	3·30

The following gives comparative data for the districts in this division and shows that the rainfall, except in Jhansi, was below the normal :—

District.	Rainfall. Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jhansi	7·50	5·83	+1·67	+ 29
Agra	2·76	4·43	−1·67	− 38
Muttra	3·83	3·98	−0·15	− 4
Aligarh	3·94	4·27	−0·33	− 8
Bulandshahr	3·05	4·37	−1·32	− 30
Meerut	3·29	4·47	−1·18	− 26

In the submontane division there were also two rainfall periods, the first running from the 6th to the 14th, the second from the 21st to the 24th. The first was the more important, and, while it lasted, the following falls exceeding 4 inches in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Dehra Dun	Rajpur	6th Sept.	4·14
Dehra Dun	Raipur	7th ,,	4·10
Moradabad	Sambhal	12th ,,	4·62
Naini Tal	Kathgodam	,, ,,	4·60
Bareilly	Faridpur	14th ,,	5·41
Pilibhit	Puranpur	,, ,,	4·71

The following gives comparative data for the dstricts in this division and shows that the rainfall was irregularly distributed over the division :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Pilibhit	11·75	8·18	+3·57	+44
Shahjahanpur	6·05	6·18	−0·13	− 2
Budaun	5·72	5·90	−0·18	− 3
Bareilly	8·16	7·50	+0·66	+ 9
Moradabad	6·06	5·91	+0·15	+ 3
Bijnor	2·89	6·76	−3·87	−57
Muzaffarnagar	1·73	5·25	−3·52	−67
Saharanpur	3·25	5·68	−2·43	−43
Dehra Dun	11·70	9·76	+1·94	+20
Almora	9·89	8·22	+1·67	+20
Garhwal	6·87	6·19	+0·68	+11
Naini Tal	10·39	8·83	+1·56	+18

In the Punjab the month's rainfall was very irregularly distributed. In the south Punjab there were general showers on the 17th and scattered showers between the 1st and 15th and again between the 20th and 23rd. The falls were occasionally moderately heavy, particularly so on the 17th. The following falls exceeding 1 inch in 24 hours were recorded during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Hissar	Fatehabad	1st September	1·30
	Hansi	,, ,,	1·12
Ferozepore	Fazilka	13th ,,	1·88
	Zira	17th ,,	2·10
Jind State	Safidan	,, ,,	1·80
Montgomery	Dipalpur	,, ,,	1·70
Jind State	Dhaneta	,, ,,	1·51
Hissar	Bhiwani	,, ,,	1·39

The following gives comparative data for the different districts in the division and shows that except in Montgomery the total rainfall was below the normal :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Hissar	1·22	2·08	−0·86	−41
Ferozepore	1·14	1·88	−0·74	−39
Montgomery	1·26	0·98	+0·28	+29

In the central Punjab the rainfall was both heavier and more general than in the south division. Three fairly general falls of rain were reported. The first between the 6th and the 9th, the second on the 16th and 17th, and the third on the 20th and 21st. The heaviest rainfall was received on the 8th and 9th, but moderate showers were also registered on the 16th and 19th. The following gives falls exceeding 2 inches in 24 hours recorded during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Gurgaon	Tauru	8th September	3·50
Delhi	Mahrauli	,, ,,	3·00
Gurgaon	Nuh	,, ,,	2·86
Delhi	Sonepat	,, ,,	2·39
	Ballabgarh	,, ,,	2·21
Gurgaon	Ferozpur	9th ,,	2·65
Lahore	Meean Meer	,, ,,	2·50
Gurgaon	Punahana	,, ,,	2·07
Karnal	Rajaund	16th ,,	2·20
Lahore	Nijabat	17th ,,	2·40

The following gives comparative data for the districts in this division, and shows that except in Lahore the average of the month was exceeded :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Lahore	1·78	1·90	−0·12	− 6
Gujranwala	2·75	1·71	+1·04	+ 61
Gujarat	2·69	2·44	+0·25	+ 10
Jhelum	3·80	1·89	+1·91	+101

In the submontane division the rainfall was also irregularly distributed. Showers occurred from the 1st to the 21st, after which the weather cleared. These showers were heavy and general on some days, *e.g.*, the 1st, 5th, 8th, and 17th, and the following falls exceeding 2 inches in 24 hours were recorded on these dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jullundur	Jullundur	1st September	4·11
Ludhiana	Ludhiana	,, ,,	3·56
Hushiarpur	Hushiarpur	,, ,,	3·12
	Sadr Station	,, ,,	2·15
Patiala State	Lehal	5th ,,	3·00
Umballa	Umballa	,, ,,	2·10
	Naraingarh	8th ,,	5·70
Jullundur	Nawashahr	,, ,,	5·05
Umballa	Dadupur	,, ,,	4·90
Ludhiana	Samrala	,, ,,	4·80
Umballa	Jagadhari	,, ,,	3·56
Hoshiarpur	Hoshiarpur	,, ,,	2·77
	Sadr Station	,, ,,	2·34
Patiala State	Lehal	,, ,,	2·21
Umballa	Rupar	,, ,,	2·13

In the hills there were almost daily showers from the 1st to the 22nd, when the rains ceased. The rainfall was light or moderate in the Simla hills but was heavy in Kangra, more particularly on the 4th and 7th. In the north-west Punjab scattered showers were received from the 5th to the 17th, the remainder of the month having been fine. The showers though scattered were occasionally heavy, as is shown by the following table giving the falls exceeding 2 inches in 24 hours :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kangra	Dharmsala	4th September	5·18
	Hamirpur	,, ,,	2·50
	Dera	,, ,,	2·50
	Kangra	7th ,,	3·38
	Dera	,, ,,	3·20
	Hamirpur	,, ,,	2·38
	Dharmsala	9th ,,	2·80
	Kangra	13th ,,	3·80

The following gives comparative data for the districts in this division and shows that except in Sialkot the month's rainfall exceeded the normal :—

District.	Rainfall. Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Kangra	7·47	6·62	+0·85	+13
Sialkot	1·78	2·51	—0·73	—29
Rawalpindi	4·34	2·93	+1·41	+48

The west Punjab also received showers between the 6th and the 17th. The showers were moderately heavy in the Shahpur district, and the general rainfall of the whole division was heavier than usual though in Mooltan there was practically no rain throughout. The following gives comparative data for the districts in this division :—

District.	Rainfall. Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Mianwali	0·71	0·77	—0·06	— 8
Shahpur	1·62	1·16	+0·46	+40
Jhang	0·72	0·85	—0·13	—15
Dera Ghazi Khan	0·36	0·34	+0·02	+ 6
Muzaffargarh	0·48	0·45	+0·03	+ 7
Mooltan	0·01	0·62	—0·61	—98

In the North-West Frontier Province rain fell on the 5th, 9th, 10th, 14th, and 16th. In the Kohat, Bannu, Dera Ismail Khan and Kurram districts the heaviest falls of rain were recorded generally on the 5th when the first storm of the month was entering the permanent low pressure area in the extreme north-west. On this occasion the following amounts exceeding 1 inch in 24 hours were recorded :—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 5th September 1902.
		Inches.
Dera Ismail Khan	Kulachi	3·20
	Tonk	2·50
Kohat	Hangu	2·18
	Fort Lockhart	1·80

In the Peshawar district, on the contrary, the heaviest falls were recorded on the 14th and 16th, when the weather was locally very disturbed over the hill area surrounding the north-west frontier, and snow and rain fell over Kashmir and the Hindu Kush. The following falls exceeding 1 inch in 24 hours were recorded on this occasion :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Peshawar	Lahore	14th September	2·10
	Nowshera	" "	1·40
Bannu	Bannu	" "	1·17
Peshawar	Charsadda	16th "	1·90
	Nowshera	" "	1·38
Kohat	Hangu	" "	1·25
	Banda Daud Shah	" "	1·06

Baluchistan received rain on the 4th and 5th from the first storm of the month. The amounts were generally moderate except in Thal Chotiali and the Kachhi Plain where the following falls exceeding 1 inch in 24 hours were registered :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Thal Chotiali	Spintangi	4th September	1·85
Kachhi Plain	Jhatput	" "	1·80
Thal Chotiali	Sunari	" "	1·30
	Shahrig	" "	1·24
	Sibi Railway Station	" "	1·22
Kachhi Plain	Nari	" "	1·12
Thal Chotiali	Sunari	5th "	2·00
	Sibi Railway Station	" "	1·50
	Harnai	" "	1·04

The local disturbance of the 16th hardly affected the weather in Baluchistan, but on the Kachhi Plain rain fell generally at this time, the station of Mittri receiving 1 inch, and of Bellputt 1·50 inches. These two falls of rain gave Baluchistan much heavier rain than the average, the actual having been four times the normal fall.

The Jummoo State of Kashmir received frequent showers up to the 17th when the rains ceased and the weather cleared. Heavy falls were received on the 3rd and 4th, on the 7th and 8th, and between the 14th and 17th. The following gives the falls exceeding 1·50 inches during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jummoo	Kathua	3rd September	3·35
	Sri Ranbir Singh Pora	" "	3·20
	Nishowrah	" "	2·50
	Punch	" "	2·42
	Riasi	" "	2·18
	Jummoo	4th "	1·71
	Pader	" "	1·59
	Sambha	7th "	1·88
	Udumpur	" "	1·80
	Jasmairgarh	8th "	2·07
	Ramnagar	14th "	2·62
	Sri Ranbir Singh Pora	16th "	1·63
	Nishowrah	" "	1·52

For the Kashmir State the returns are incomplete, but the rainfall was much lighter and more scattered than in Jammoo.

In Rajputana there were three periods of general showers, *viz.*, the 1st to the 5th, when the first storm of the month affected the weather; the 8th to the 12th, when the shallow residual depression of the second storm lay over the United Provinces; and from the 16th to the 22nd, when the third storm of the month passed from the Central Provinces into Sind.

The first rainfall period was principally felt in eastern Rajputana, and the following falls of rain exceeding 1″ in 24 hours were received in the eastern states :—

State.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kotah	Sangod	1st September	1·90
	Atroo	" "	1·52
	Shergarh	" "	1·37
Sirohi	Erinpura	" "	1·12
Banswara	Banswara	2nd "	3·63
Udaipur	Kotra	" "	3·57
Kusalgarh	Kusalgarh	" "	2·39
Jhalawar	Gangdhar	" "	1·57
Dungarpur	Dungarpur	" "	1·39
Jhalawar	Chaoni	" "	1·09
Udaipur	Udaipur	3rd "	2·91
Partabgarh	Partabgarh	" "	2·30
Sirohi	Mount Abu	" "	1·77
Udaipur	Kherwara	" "	1·22
Sirohi	Sirohi	" "	1·04
	Mount Abu	4th "	2·55
Ajmer-Merwara	Dawer	" "	1·10
	Beawar	" "	1·01

The rainfall of the second showery period (8th to 12th) was much more extensive and heavier than that of the first but was also mainly confined to the eastern states. The following gives the falls exceeding 2 inches in 24 hours recorded at this time :—

STATE.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
BHARATPUR	Paharee	8th September	3·33
ALWAR	Govindgarh	9th "	2·08
KUSALGARH	Kusalgarh	10th "	2·75
DUNGARPUR	Dungarpur	11th "	6·57
BANSWARA	Banswara	" "	5·50
KUSALGARH	Kusalgarh	" "	3·79
KOTAH	Manohar Thana	" "	2·32
UDAIPUR	Kherwara	12th "	2·77

The rainfall of the third period was general throughout the whole of Rajputana and was very heavy and extensive for the time of year. The following were the principal falls (exceeding 2·50″ in 24 hours) recorded:—

STATE.	Station.	Date.	Rainfall during 24 hours preceding 8 A. M. of date.
			Inches.
KOTAH	Mandana	17th September	2·96
AJMER-MERWARA	Dawer	18th "	3·50
JAIPUR	Chatsu	" "	3·01
DHOLPUR	Gajpura	" "	3·00
JAIPUR	Chatsu	19th "	3·45
	Jaipur	" "	2·95
DHOLPUR	Soncka Gurja	" "	2·90
AJMER-MERWARA	Harmara	" "	2·86
	Pisangan	20th "	4·65
KOTAH	Kotah	" "	3·43
AJMER-MERWARA	Ajmer	" "	3·05
DHOLPUR	Garhi Sandra	21st "	4·05
ALWAR	Rajgarh	" "	3·87
DUNGARPUR	Dungarpur	" "	3·75
AJMER-MERWARA	Sawar	" "	3·50
JAIPUR	Samodh	" "	2·67
	Chamu	22nd "	3·04
	Lalsot	" "	3·02

The rainfall of the month was normal or heavier than usual, as is shown by the following comparative data for some of the larger states :—

STATE.	RAINFALL.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Jodhpur	2·12	2·21	−0·09	− 4
Bikaner	1·41	1·08	+0·33	+31
Jaipur	3·74	3·02	+0·72	+24
Alwar	3·49	3·77	−0·28	− 7
Bharatpur	4·38	4·59	−0·21	− 5
Dholpur	4·84	4·79	+0·05	+ 1
Karauli	4·85	4·31	+0·54	+13
Kotah	4·18	3·84	+0·34	+ 9
Ajmer-Merwara	5·63	3·71	+1·92	+52
Udaipur	9·86	5·40	+4·46	+83
Sirohi	8·19	5·39	+2·80	+52

The rainfall of Central India occurred under generally the same conditions as that over Rajputana, except that the final burst was relatively less extensive and heavy. The rainfall periods were, roughly, from the 1st to the 5th, the 9th or 10th to the 12 and the 16th to the 21st. During these three periods falls of rain exceeding 3″ in 24 hours were recorded at the following places on the following dates :—

STATE.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
GWALIOR	Jobat	2nd September.	4·76
	Jaora	" "	4·04
BHOPAL AGENCY	Narsinghgarh	" "	3·75
GWALIOR	Sailana	" "	3·26
	Dhar	" "	3·26
BHOPAL AGENCY	Bhopal	3rd "	4·15
REWAH	Ramnagar	4th "	4·41
BUNDELKHAND	Kadaura	9th "	3·37
GWALIOR	Sailana	10th "	6·50
BHOPAL AGENCY	Ashta	" "	4·24

State.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Gwalior	Shujaulpur	10th September.	3·18
Rutlam	Rutlam	11th ,,	9·25
Bundelkhand	Kodaura	,, ,,	5·85
Gwalior	Sailana	,, ,,	3·96
	Manpur	,, ,,	3·05
	Alirajpur	12th ,,	4·70
Bhopal Agency	Sehore	,, ,,	3·70
	Narsinghgarh	,, ,,	3·45
Bundelkhand	Nadigaon	19th ,,	3·08

The general rainfall of the month exceeded the normal as is shown by the following comparative data for the larger states :—

State.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Indore	6·68	7·46	−0·78	−10
Rutlam	14·72	7·65	+7·07	+92
Bhopal Agency	8·73	7·01	+1·72	+25
Gwalior	7·66	4·93	+2·73	+55
Nagode	8·31	6·96	+1·35	+19
Maihar	7·89	6·49	+1·40	+22
Rewah	8·34	7·14	+1·20	+16
Bundelkhand	7·38	6·86	+0·52	+ 8

The weather over the Central Provinces was very showery from the 1st to the 22nd, when the sky cleared and the rains ceased. There were, however, three periods of more general rain corresponding with the first, second and third storms of the month. These periods were hence, roughly, from the 1st to the 3rd, from the 6th to the 13th, and from the 18th to the 22nd. Of these three periods the second was much the most important. The small residual depression of the second storm lay during this time over the neighbouring parts of the United Provinces, and daily moderate to heavy rain was received over the Central Provinces. The following gives the falls exceeding 3·50 inches in 24 hours recorded during the month, and shows that most of the heavy falls were registered during the second rainfall period :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Wardha	Hinganghat	1st September.	5·05
Narsinghpur	Narsinghpur	,, ,,	4·82
	Gadarwara	2nd ,,	4·21
Mandla	Mandla	,, ,,	4·10
Seoni	Lakhnadon	,, ,,	3·63
Feudatory States.	Rampur	5th ,,	3·97
Balaghat	Lanji	7th ,,	5·25
	Baihar	,, ,,	4·14
Chanda	Sironcha	,, ,,	3·65
Mandla	Tikaria	8th ,,	4·59
Damoh	Tejgarh	,, ,,	4·45
Bhandara	Tirora	,, ,,	4·30
Chhindwara	Harrai	,, ,,	3·95
Chanda	Brahmapuri	,, ,,	3·63
Mandla	Mandla	9th ,,	7·50
Damoh	Hatta	,, ,,	3·87
Jubbulpore	Murwara	10th ,,	4·45
Nimar	Burhanpur	16th ,,	3·81

The total rainfall was below the normal in the western districts, but was normal or above in the central districts. The following gives comparative data for all the districts in the Central Provinces :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Chanda	8·81	8·91	−0·10	− 1
Bhandara	6·08	9·00	−2·92	−32
Balaghat	8·01	9·03	−1·02	−11
Raipur	5·71	7·46	−1·75	−23
Bilaspur	6·61	7·58	−0·97	−13
Sambalpur	5·75	8·31	−2·56	−31
Saugor	9·37	6·98	+2·39	+34
Damoh	12·98	7·35	+5·63	+77
Jubbulpore	8·98	6·61	+2·37	+36
Mandla	15·65	7·25	+8·40	+116
Seoni	8·55	8·51	+0·04	0
Narsinghpur	11·77	9·57	+2·20	+23
Hoshangabad	7·77	10·77	−3·00	−28
Nimar	6·39	6·49	−0·10	− 2
Betul	6·16	8·45	−2·29	−27
Chhindwara	8·04	7·96	+0·08	+ 1
Wardha	5·79	7·35	−1·56	−21
Nagpur	5·66	8·49	−2·83	−33

In Berar the rainfall conditions were similar to those in the west of the Central Provinces. There were three rainfall periods, *viz.*, from the 1st to the 3rd; from the 8th to the 14th; and from the 17th to the 21st. There were a few locally heavy falls, mainly occurring during the first period. Of these the following (exceeding 3 inches in 24 hours) were the more important:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Wun	Wun	1st September.	6·84
Buldana	Deulgaon Raja	" "	3·23
Ellichpur	Dharni	2nd "	5·75
	Chikalda	" "	4·16

The general rainfall of the month was, as in the west of the Central Provinces, less than the normal, as is shown by the following compsrative statement giving the rainfall of the different districts of Berar:—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Amraoti	3·56	5·60	−2·04	−36
Ellichpur	4·77	6·31	−1·54	−24
Akola	3·40	5·17	−1·77	−34
Buldana	3·43	5·45	−2·02	−37
Wun	5·10	6·88	−1·78	−26
Basim	4·26	6·83	−2·57	−38

In the Bombay Presidency there was heavy rain in the coast and northern districts, and normal or scanty rain in the Deccan districts. In the Konkan there was daily rainfall from the 1st to the 22nd when the fall decreased and the last six days of the month, with the exception of a few local showers, were fine. Moderately heavy rain fell generally during the first ten days, and in Kolaba and Thana between the 17th and the 20th, when the local depression, which joined the third storm of the month, was developing over the north Konkan coast. The following are the falls exceeding 5 inches in 24 hours registered during the month:—

District	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
North Canara	Honavar	1st September	6·44
	Bhatkal	" "	5·21
Thana	Voda	2nd "	7·31
	Bhiwndi	" "	7·13
	Kalyan	" "	7·06
	Dahanu	" "	7·02
Kolaba	Matheran	" "	6·50
Thana	Shahapur	" "	5·94
Kolaba	Karjat	" "	5·76
Thana	Mahim	" "	5·40
	Bassein	" "	5·20
Kolaba	Pen	" "	5·20
	Matheran	3rd "	7·65
Thana	Umbargaon	" "	5·05
Ratnagiri	Khed	7th "	6·05
North Canara	Kumta	8th "	7·42
	Honavar	" "	7·13
Thana	Dahanu	17th "	12·72
Kolaba	Alibag	" "	7·28
Thana	Umbargaon	" "	7·00
	Bombay	" "	5·85
	Kurla	" "	5·40
	Mahim	18th "	5·45
		20th "	6·05

The total rainfall of the month was considerably in excess of the normal, as is shown by the following comparative data for the different districts of this division:—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North Canara	21·63	9·40	+12·23	+130
Savantvadi	24·74	12·87	+11·87	+ 92
Ratnagiri	20·06	14·21	+ 5·85	+ 41
Kolaba	26·86	18·17	+ 8·69	+ 48
Thana	27·78	12·92	+14·86	+115

The Karnatak received fairly general showers up to the 19th and light scattered showers from the 20th to the 28th when the weather cleared. There were no falls of any importance during the month, and the total fall for the month was below the normal, as is shown by the following

comparative data for the different districts of the division :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dharwar	3·06	4·11	—1·05	—26
Bijapur	4·45	6·75	—2·30	—34
Belgaum	3·89	4·61	—0·72	—16

In the south Deccan there were three showery periods, *viz.*, from the 1st to the 4th; the 7th to the 10th; and the 13th to the 20th. After the latter date the weather was generally fine with a few scattered showers. The rainfall was heavy in places during the first and third periods. The following gives data of falls exceeding 3 inches in 24 hours :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Satara . . .	Malcolmpeth . .	1st September	3·72
Poona . . .	Lanoli . . .	2nd „ .	5·77
		3rd „ .	5·51
Satara . . .	Malcolmpeth .	„ „ .	4·00
		7th „ .	3·90
		9th „ .	3·25
Sholapur . .	Sholapur . .	13th „ .	5·69
Poona . .	Sirur . . .	14th „ .	3·13
Sholapur . .	Barsi . . .	15th „ .	6·02
	Sholapur . .	„ „ .	3·71
Poona . . .	Baramati . .	16th „ .	3·80
Sholapur . .	Akluj . . .	„ „ .	3·04
Satara . . .	Mhasvad . .	17th „ .	8·13
Sholapur . .	Barsi . . .	„ „ .	3·34
Satara . . .	Malcolmpeth . .	„ „ .	3·20
Sholapur . .	Sangola . . .	„ „ .	3·17
Poona . . .	Sasvad . . .	„ „ .	3·17

The following gives comparative data for the districts in this division :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Satara	5·50	6·71	—1·21	—18
Sholapur	8·62	7·98	+0·64	+8
Poona	6·32	6·65	—0·33	—5

In the north Deccan, also, three rainfall periods were observed, *viz.*, from the 1st to the 3rd; the 7th to the 10th; and the 14th to the 21st. During the first and third periods the rainfall was heavy and general, while during the second it was light and scattered. The following were the principal (over 3 inches in 24 hours) amounts recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Nasik . . .	Igatpuri . . .	2nd September	3·30
	Trimbak . .	3rd „ .	5·35
	Igatpuri . .	„ „ .	4·40
		4th „ .	3·17
Ahmednagar . .	Parner . . .	14th „ .	5·91
Khandesh . .	Bhadgaon . .	„ „ .	4·64
Ahmednagar .	Ahmednagar . .	„ „ .	3·86
Khandesh . .	Parola . . .	„ „ .	3·42
Ahmednagar . .	Ahmednagar . .	15th „ .	6·86
	Parner . . .	„ „ .	4·50
Khandesh . .	Sindkheda . .	18th „	4·80
	Parola . . .	„ „ .	3·15
Nasik . . .	Nasik . . .	19th „ .	4·50
	Chandor . . .	„ „ .	3·13

The following gives comparative data for the different districts in this division, and shows that the month's rainfall was about normal :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ahmednagar	7·30	6·46	+0·84	+13
Nasik	7·90	8·18	—0·28	— 3
Khandesh	6·05	5·59	+0·46	+ 8

In Gujarat the weather was rainy and unsettled from the 1st to the 21st, when it cleared and became fine. The first storm of the month reached Gujarat on the 3rd, and

heavy rain was reported on that and the following day. The following is a record of the falls exceeding 4 inches in 24 hours :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Panch Mahals	Godhra	3rd September	7·79
Ahmedabad	Sanand	,, ,,	7·55
	Dholka	,, ,,	6·26
Kaira	Dakor	,, ,,	6·00
Panch Mahals	Kalol	,, ,,	5·51
Surat	Pardi	,, ,,	5·50
Kaira	Mahudha	,, ,,	5·18
	Mehmadabad	,, ,,	4·86
Ahmedabad	Ahmedabad	,, ,,	4·27
	Parantij	,, ,,	4·15
Rewa Kantha	Wadasinor	,, ,,	4·08
Kaira	Mehmadabad	4th ,,	9·13
Ahmedabad	Sanand	,, ,,	8·22
Kaira	Matar	,, ,,	6·59
	Kaira	,, ,,	6·18
	Nadiad	,, ,,	4·78
Ahmedabad	Ahmedabad	,, ,,	4·62
	Dholka	,, ,,	4·61
Kathiawar	Vankaner	,, ,,	4·10
	Chuda	,, ,,	4·05
	Rajkot	,, ,,	4·05

The above storm moved away westward and the weather improved, but general moderate showers were received on the 11th and 12th. Between the 16th and the 21st a shallow depression advanced across Gujarat from the Central Provinces, while a second advanced northward from the north Konkan coast, so that fair, moderate rain was received over the province between those dates. The following were the falls exceeding 2·50 inches in 24 hours :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Broach	Amod	16th September	3·55
Ahmedabad	Parantij	,, ,,	2·96
Panch Mahals	Halol	,, ,,	2·72
Surat	Chikhli	17th ,,	2·98
,, Agency	Bansda	,, ,,	2·98
Surat	Bardoli	18th ,,	4·16
	Jalalpor	,, ,,	2·62
Kathiawar	Songad	18th September	2·60
Ahmedabad	Gogha	19th ,,	3·72
Rewa Kantha	Chhota Udepur	,, ,,	3·63
Surat	Surat	,, ,,	3·32
	Olpad	,, ,,	2·97
Broach	Ilav	,, ,,	2·90
Surat	Rander	,, ,,	2·60
Palanpur	Palanpur	20th ,,	4·03
Mahi Kantha	Ahmednagar	,, ,,	2·85
Surat	Surat	,, ,,	2·80
Rewa Kantha	Wadasinor	21st ,,	5·90
Surat	Valod	,, ,,	3·00

The following gives comparative data for the different districts in this division, and shows that the month's rainfall was in considerable to large excess :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Surat	13·44	8·42	+5·02	+ 60
Broach	11·21	5·90	+5·31	+ 90
Kaira	13·20	5·32	+7·88	+148
Panch Mahals	13·05	6·68	+6·37	+ 95
Ahmedabad	12·30	4·80	+7·50	+156

The first storm of the month gave relatively heavy rain to Sind, and the general rainfall of that province for the month was in large excess of the normal. The following gives comparative data for the districts in this division :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Kurrachee	3·93	0·49	+3·44	+ 702
Hyderabad	4·90	0·30	+4·60	+1,533
Larkhana	2·31	0·36	+1·95	+ 542
Sukkur	1·61	0·21	+1·40	+ 667
Upper Sind Frontier	0·50	0·19	+0·31	+ 163
Thar and Parkar	2·93	1·22	+1·71	+ 140

Showers were received over the greater part of Mysore from the 6th to the 25th. The remaining portions of the month were generally fine except in the districts of Hassan, Shimoga and Kadur, where there were heavy showers during the first five days also. The days of most general rain over the province were the 6th, 9th, 11th, 12th, 14th, 17th and 25th, when storms were in existence over the Bay or had just crossed the Bay coasts. The heaviest rainfall was received during the first half of the month when the following amounts exceeding 4 inches in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Shimoga	Tirthahalli	1st September	4·31
Kadur	Sringeri	8th ,,	4·19
	Koppa	9th ,,	5·15
	Sringeri	,, ,,	5·00
Kolar	Chikballapur	12th ,,	4·73

The rainfall was irregularly distributed, but was on the whole heavier than usual. This is shown by the following comparative data for the different districts :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Bangalore	5·71	5·28	+0·43	+ 8
Kolar	6·69	5·19	+1·50	+29
Tumkur	4·25	4·75	−0·50	−11
Mysore	2·20	4·06	−1·86	−46
Hassan	3·64	3·53	+0·11	+ 3
Shimoga	8·08	5·88	+2·20	+37
Kadur	12·34	5·85	+6·49	+111
Chitaldroog	2·56	4·31	−1·75	−41

The rainfall of the Madras Presidency was generally in excess of the average, more especially in the Malabar division. No storms actually crossed the Madras coast during the month, but the rainfall of the whole Presidency was largely related to the various storms which developed over the Bay.

The Malabar districts received practically daily rain up to the 23rd or 24th, when the fall somewhat abruptly ceased. Heavy rain was reported on the 1st and 2nd, and between the 6th and the 13th, and during these periods the following amounts exceeding 4 inches in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
South Canara	Baindur	1st September	6·42
	Coondapoor	,, ,,	5·95
	Udipi	,, ,,	5·50
	Mangalore	6th ,,	4·94
	Coondapoor	8th ,,	5·12
	Baindur	,, ,,	4·96
	Beltangadi	9th ,,	6·04
	Mulki	,, ,,	5·47
	Bantwal	,, ,,	5·40
Malabar	Tellicherry	,, ,,	5·30
South Canara	Karkal	,, ,,	5·20
Malabar	Kuttiadi	,, ,,	4·91
	Vayittiri	,, ,,	4·74
Travancore State	Kunnatnad	,, ,,	4·68
South Canara	Coondapoor	,, ,,	4·55
Travancore State	Karunagapally	10th ,,	6·09
South Canara	Karkal	,, ,,	5·96
Travancore State	Quilon	,, ,,	4·80
	Karunagapally	11th ,,	6·23
South Canara	Coondapoor	13th ,,	5·28

The general rainfall of the month was largely above the normal as is shown by the following comparative data for the two districts in this division :—

District.	Rainfall.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Malabar	19·38	7·66	+11·72	+153
South Canara	34·19	12·23	+21·96	+179

In south Madras there were scattered showers more or less throughout the month. These showers became fairly general and moderately heavy between the 6th and the

11th and the 26th to the 30th. The following is a record of the falls exceeding 2 inches in 24 hours during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tinnevelly	Virudupatti	20th September	2·79
Madura	Madura	26th „	2·75
Madura	Mudukulattur	27th „	2·70
Madura	Sivaganga	„ „	2·09

The total rainfall of the month was in slight defect, as is shown in the following comparative statement for the two districts:—

District.	Rainfall			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Madura	2·00	2·97	−0·97	−33
Tinnevelly	1·38	1·19	+0·19	+14

In south-central Madras the rainfall conditions were very similar. Showers prevailed more or less throughout the month, and on occasions these showers were heavy, as is shown below:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Salem	Denkanikota	12th September	2·26
Salem	Vaniyambadi	17th „	3·80
Salem	Tathiangarpettai	30th „	2·13
Coimbatore	Karur	„ „	2·04

The month's rainfall of south-central, as for south Madras, was less than usual. The extent of the deficiency in the two districts is shown below:—

District.	Rainfall			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Salem	4·27	5·86	−1·59	−27
Coimbatore	1·54	3·01	−1·47	−49

In central Madras the weather was very showery up to the 25th, after which the weather cleared and only a few, light, scattered showers were recorded. The showers were general and moderately heavy on the 5th and 6th, from the 12th to the 16th, and on the 20th, and the following falls exceeding 2·50 inches were recorded during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Cuddapah	Jammalamagu	12th September	5·11
Cuddapah	Badvel	„ „	3·58
Cuddapah	Sidhot	„ „	3·03
Kurnool	Atmakur	„ „	3·02
Kurnool	Allagadda	„ „	3·00
Anantapur	Dharmavaram	„ „	2·87
Kurnool	Nandyal	„ „	2·85
Anantapur	Tadpatri	„ „	2·83
Cuddapah	Rayachoti	„ „	2·69
Anantapur	Gooty	14th „	6·04
Bellary	Alur	„ „	4·16
Bellary	Adomi	„ „	3·70
Cuddapah	Madanapalle	17th „	4·50
Cuddapah	Chitvel	„ „	3·18
Cuddapah	Vayalpad	„ „	2·53
Anantapur	Anantapur	20th „	2·72

The rainfall of the districts forming the division was in some excess, as is shown below:—

District.	Rainfall			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah	6·37	5·20	+1·17	+23
Anantapur	6·04	5·01	+1·03	+21
Bellary	6·36	5·20	+1·16	+22
Kurnool	7·28	5·80	+1·48	+26

In the north division of the East Coast the weather was rainy and disturbed up to the 24th, when it cleared. The periods of most general and heaviest rainfall agreed with the periods of development and advance of the cyclonic storms in the Bay and were hence: the 1st to the 3rd; the 5th to the 8th; the 14th to the 18th; and the 20th to

the 24th. The falls of rain during these periods were in no way remarkable and the following were the only amounts exceeding 4 inches in 24 hours:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
GODAVARI	Addatigala	6th September	4·32
	Addatigala	12th "	6·00
	Ellore	21st "	5·19
GANJAM	Narasanna pet	24th "	4·30
GODAVARI	Addatigala	25th "	4·22

The total rainfall of the month was, owing to the frequency of the cyclonic storms, slightly in excess of the normal, as is shown by the following statement giving comparative data for the different districts:—

DISTRICT.	RAINFALL.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	6·29	7·88	—1·59	—20
Vizagapatam	7·49	7·63	—0·14	— 2
Godavari	8·52	7·29	+1·23	+17
Kistna	7·61	6·04	+1·57	+26

In the central division of the East Coast rain fell generally on the 1st, 5th and 6th, and between the 17th and 23rd. At other times the rainfall was scattered and unimportant. The individual falls were not heavy, only exceeding 2 inches in 24 hours at the following places on the following dates:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
NELLORE	Addanki	12th September	2·92
	Kota	19th "	2·31
	Tada	20th "	2·46
	Atmakur	" "	2·40
	Gudur	21st "	2·21
	Addanki	22nd "	2·41

But the total fall for the month was in some excess, as is shown by the following comparative data for the Nellore district:—

DISTRICT.	RAINFALL.			
	Average actual, September 1902.	Average normal, September.	Variation of actual from normal, September 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Nellore	5·68	4·43	+1·25	+28

In the south of the East Coast rain fell generally on the 5th and 6th, between the 11th and 14th, between the 17th and the 20th or 21st, and between the 26th and the 29th. The falls which were the most important, were those between the 17th and 21st, and between the 26th and 29th the last having been confined to southern India. During these falls the following amounts exceeding 3·50 inches in 24 hours were recorded:—

DISTRICT.	Station.	Date.	Rainfall during 24 hour preceding 8 A.M. of date.
			Inches.
NORTH ARCOT	Arni	17th September	5·45
	Tirupati	" "	4·30
	Chittoor	" "	4·20
SOUTH ARCOT	Chidambaram	26th "	4·41
	Bhuvanagiri	" "	3·99

The following gives a comparative statement of the rainfall of September at the Extra-India stations. It will be observed that in the Equatorial regions the rainfall was irregularly distributed, Zanzibar reporting a slight excess, and the Seychelles a considerable deficiency. Western Ceylon and the Maldive Islands participated in the excess which was general along the West Coast of India, while eastern Ceylon had a deficiency of rain. Over the whole of Afghanistan, Persia, Asiatic Turkey and Arabia there was, so far as the observations show, no rain throughout the month, but the reports from the Aden survey party (mentioned in an earlier section) show that thunderstorms occurred in south-west Arabia during the first half of the month. At Kashgar 1 inch of rain was measured on the

1st September, and the rainfall at this station was locally in excess :—

STATION.	RAINFALL.		
	Actual, September 1902.	Normal, September.	Variation of actual from normal, September 1902.
	Inch.	Inch.	Inch.
Meshed	0	0·02	—0·02
Teheran	0	0·14	—0·14
Ispahan	0	0	0
Bushire	0	0	0
Jask	0	0	0
Muscat	0	0	0
Baghdad	0	0	0
Bussrah	0		
Aden	0	0·13	—0·13
Perim	0	0·01	—0·01
Kabul	0	0·03	—0·03
Kashgar	1·00	0·43	+0·57
Minicoy	8·44	5·97	+2·47
Trincomalee	2·04	4·56	—2·52
Colombo	8·27	4·82	+3·45
Zanzibar	3·64	2·03	+0·61
Seychelles	2·51	5·37	—2·86

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 230 Stations in India, Burma, etc., in September, 1902.

Table

Abstract of Observations taken at 8 A.M. at 230 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.				+·020								85·6	+0·1	76·0	+0·6	80·8	+0·4	9·					16·6
1	Tenasserim and Bay Islands.	Car Nicobar	25	29·913		29·865	29·951	28th	29·860	2nd	·091	78·9	85·2		76·4		80·8		8·8	88·2	26th	72·7	4th	15·5
		Port Blair	61	29·841	+·024	29·833	29·919	30th	29·783	24th	·136	79·5	84·0	−1·1	76·9	+0·4	80·5	−0·4	7·1	87·7	3rd	73·6	4th	14·1
		Mergui	96	29·848	+·039	29·875	29·918	30th	29·781	3rd	·137	77·2	84·7	+0·3	74·1	+1·9	79·4	+1·1	10·6	89·1	3 days	71·9	27th	17·2
		Tavoy	26	29·910	+·023	29·867	29·978	30th	29·844	3rd	·134	77·1	83·6	−0·4	74·2	+0·5	78·9	+0·1	9·4	88·2	4 days	72·0	2 days	16·2
		Moulmein	94	29·799	+·020	29·831	29·867	30th	29·719	22nd	·148	78·6	85·8	+1·0	74·9	+0·4	80·4	+0·7	10·9	91·0	17th	71·8	27th	19·2
2	Lower Burma	Rangoon	41	29·827	+·004	29·806	29·890	11th	29·743	23rd	·147	79·3	85·6	−0·1	76·3	+0·4	81·0	+0·2	9·3	90·1	2 days	73·9	3 days	16·2
		Bassein	27	29·839	+·023	29·801	29·906	19th	29·751	23rd	·155	79·6	86·2	+0·7	77·1	+1·3	81·7	+1·0	9·1	90·2	17th	74·6	2 days	15·6
		Diamond Island	41	29·820	+·008	29·796	29·874	19th	29·742	23rd	·132	80·7	84·6	−0·2	76·9	+1·1	80·8	+0·5	7·7	87·4	2 days	73·2	29th	14·2
5	Arakan	Akyab	20	29·804	+·006	29·767	29·887	11th	29·666	7th	·221	80·8	86·5	−0·1	78·4	+0·4	82·5	+0·2	8·1	89·9	2 days	75·7	2 days	14·2
3	Central Burma	Toungoo	183	29·692	+·030	29·816	29·755	16th	29·580	22nd	·175	80·4	90·0	+1·0	74·3	−1·3	82·2	−0·2	15·7	93·4	4 days	69·6	21st	23·8
	II.—Burma Inland				+·028								89·3	−1·4	75·7	0	82·5	−0·7	13·6					21·8
3	Central Burma	Thayetmyo	130	29·733	+·052	29·805	29·801	11th	29·623	23rd	·178	81·1	89·9	0						93·0	2 days			
4	Upper Burma	Minbu	165	29·680	+·014	29·789	29·749	10th	29·578	23rd	·171	80·2	89·1	−1·8	77·3	+0·4	83·2	−0·7	11·8	93·7	2 days	74·1	27th	19·6
		Yamethin	657	29·202	+·017	29·812	29·264	11th	29·095	22nd	·169	79·2	90·8	−0·9	75·1	+0·3	83·0	−0·3	15·7	96·8	18th	71·7	28th	25·1
		Mandalay	250	29·610	+·036	29·810	29·703	30th	29·496	22nd	·207	81·7	91·8	−1·0	77·0	+0·1	84·4	−0·5	14·8	96·5	3rd	74·1	30th	22·4
		Kindat	377	29·461	+·036	29·795	29·560	30th	29·345	8th	·215	78·0	86·5	−1·7	74·9	−0·4	80·7	−1·1	11·6	91·3	23rd	72·3	1st	19·0
		Bhamo	381	29·466	+·030	29·804	29·591	30th	29·376	22nd	·215	77·5	88·5	−1·6	74·	−0·2	81·4	−0·9	14·2	94·0	1st	71·1	30th	22·9
4 a)	Burma Hill Stations.	Maymyo	...	26·389			26·479	10th	26·246	22nd	·233	70·8	78·6		65·8		72·2		12·8	82·0	4th & 27th.	53·8	30th	23·2
		Taunggyi																						
		Lashio	...	27·105	+·029		27·240	30th	27·011	2nd	·229	71·7	84·0	−0·8	67·5	−0·3	75·8	−0·6	16·5	89·5	1st	58·0	30th	31·5
	III.—Assam				+·009								86·7	−1·0	76·1	−0·1	81·4	−0·5	10·7					22·4
7	Surma	Silchar	104	29·717	+·014	29·773	29·816	30th	29·542	8th	·274	80·6	90·4	+0·6	76·5	+0·1	83·5	+0·4	13·9	97·6	1st	74·3	2 days	23·3
5	Brahmaputra	Sibsagar	333	29·488	+·008	29·779	29·621	30th	29·395	1st	·226	78·5	86·4	−1·7	76·4	+0·2	81·4	−0·8	10·0	94·2	3 days	72·5	7th	21·7
		Dhubri	115	29·675	+·006	29·745	29·808	30th	29·491	8th	·317	78·9	83·2	−1·9	76·5	−0·5	79·9	−1·2	6·7	91·2	1st	72·2	22nd	19·0
		Gauhati	195	29·620		29·771	29·752	30th	29·497	8th	·255	80·0	86·0		76·6		82·3		11·4	95·5	2 days	74·0	3 days	21·5
		Tezpur	252	29·558		29·769	29·694	30th	29·454	1st	·240	76·3	86·7		76·3		81·5		10·4	95·1	2 days	72·9	8th	22·2
		Dibrugarh	353	29·471		29·789	29·568	30th	29·386	1st	·182	77·3	85·7		74·0		79·9		11·7	96·2	1st	69·5	30th	26·7
	IV.—Bengal and Orissa				−·002								88·3	−0·1	78·2	+0·4	83·3	+0·2	10·2					18·9
6	East Bengal	Chittagong	87	29·709	−·006	29·744	29·830	19th	29·542	7th	·288	81·2	87·4	+0·6	76·7	+0·4	82·1	+0·5	10·7	90·5	18th	74·6	29th	15·9
		Noakhali	43	29·748		29·738	29·850	15th & 26th.	29·567	8th	·283	81·3	86·8		77·9		82·4		8·9	90·2	23rd & 24th.	75·4	30th	14·8
		Comilla	36	29·763		29·747	29·867	30th	29·575	8th	·292	80·7	88·7		77·0		82·9		11·7	92·3	1st, 23rd & 24th.	74·3	6th & 28th	18·0
		Sirajganj	49	29·730		29·729	29·866	30th	29·503	8th	·363	80·2	86·4		77·9		82·2		8·5	90·3	1st	75·2	9th & 16th.	15·1
		Narayanganj	26	29·763	+·012	29·737	29·893	30th	29·542	8th	·356	82·3	87·7	−0·8	79·7	+0·8	83·7	0	8·0	91·1	2 days	76·2	30th	14·9
		Barisal	13	29·748*	−·020	29·706*	29·847	19th	29·543	8th	·304	82·1	87·6	−0·9	78·5	+0·2	83·1	−0·4	9·1	91·3	19th	76·1	2 days	15·2
		Mymensingh	59	29·725	−·002	29·736	29·818	30th	29·522	8th	·326	80·6	86·4	−0·7	77·4	−0·1	81·9	−0·4	9·0	91·7	1st	73·1	22nd	18·6
10	Deltaic Bengal	Faridpur	46	29·740		29·734	29·873	30th	29·516	8th	·357	82·0	87·8		78·5		83·2		9·3	90·3	18th & 23rd	73·9	9th	16·4
		Jessore	33	29·732	−·001	29·712	29·881	30th	29·496	8th	·385	82·9	89·5	+0·1	78·7	+0·2	84·1	+0·2	10·8	93·0	22nd	73·7	30th	19·3
		Calcutta	21	29·730	−·004	29·697	29·896	30th	29·501	8th	·395	83·1	89·5	+1·8	78·9	+0·9	84·2	+1·4	10·6	92·2	5th	75·1	30th	17·1
		Saugor Island	25	29·716	−·006	29·685	29·888	30th	29·502	8th	·386	83·9	90·4	+2·2	80·6	+0·9	85·5	+1·6	9·8	92·9	24th	77·1	2 days	15·8
		Krishnagar	47	29·719		29·714	29·869	30th	29·490	8th	·379	82·1	90·6		78·2		84·4		12·4	93·3	17th, 18th & 23rd.	74·2	30th	19·1
		Midnapore	149	29·588		29·683	29·761	30th	29·334	25th	·427	82·7	90·1		78·7		84·4		11·4	92·3	5 days	74·7	29th	17·6

I.

in India, Burma, etc., in September, 1902.

WIND DIRECTION. Number of Winds from									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.		Mean cloud amount.	RAINFALL.								Heaviest rainfall during month.	STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th September 1902.	Normal rainfall for period, 1st May to 30th September.	Variation from normal of period, 1st May to 30th September 1902.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				23·43	21·08	+2·32					I.—Burma Coast and Bay Islands.		
					2	8	10	2	S 71° W	3·5*	3·5*			90	·891	10·0	20			13·68						3·18	Car Nicobar†	TENASSERIM AND BAY ISLANDS.	1
						13	15	2	S 73° W	12·6	14·1	9·3	+ 52	91	·919	7·6	29			26·23	19·42	+ 6·81	103·63	84·90	+18·73	2·90	Port Blair .		
19	3				2	2	1	3	N 69° W	1·5	1·3	1·5	— 13	94	·862	5·7	25	23·40	+1·60	26·29	28·07	— 1·78	115·66	139·09	−23·43	2·50	Mergui.		
24	1				1	3		1	S 63° W	1·6				92	·857	6·3	22	24·10	−2·10	41·27	31·88	+ 9·39	185·14	191·93	−6·79	12·80	Tavoy.		
15				2	7	5	1		S 14° W	2·4	2·7	2·8	— 4	90	·878	7·0	19	21·90	−2·90	28·97	27·52	+ 1·45	161·17	169·89	−8·72	7·60	Moulmein.		
3		2	4	8	6	2	4	1	S 24° E	5·3	4·5	3·8	+ 18	90	·910	8·5	20	19·70	+0·30	15·35	15·84	− 0·49	59·83	85·41	?	4·18	Rangoon .	LOWER BURMA.	2
6		1	1	9	4	5	2	2	S 5° E	4·4		3·4	+ 29	93	·945	6·5	22	20·80	+1·20	13·22	15·89	— 2·67	101·03	98·24	+2·79	2·40	Bassein.		
2		2	1	1	1	17	4	2	S 53° W	9·7	9·7	6·8	+ 43	86	·906	6·9	17	18·90	−1·90	21·84	17·33	+ 4·51	93·23	100·18	−6·95	5·19	Diamond Island.		
		10	4	10	5			1	S 76° E	3·7	3·6	3·0	+ 20	94	·990	7·6	22	13·80	+8·20	24·23	22·18	+ 2·05	179·70	173·47	+6·23	3·25	Akyab .	ARAKAN.	5
5		1	1	13	6	4			S 25° E	4·0	4·0	2·8	+ 43	89	·943	8·2	18	17·50	+0·50	13·21	11·56	+ 1·65	59·02	68·56	−9·54	3·55	Toungoo .	CENTRAL BURMA.	3
																				8·60	7·77	+0·83					II.—Burma Inland.		
			2	10	15	3			S 16° E	5·4		4·7	+ 15	87	·924	4·4	17	11·70	+5·30	5·58	6·07	− 0·49	30·32	29·84	+ 0·48	0·98	Thayetmyo.	CENTRAL BURMA.	3
3				24	2			1	S 42° E	7·2	8·6			88	·915	6·7	11	9·30	+1·70	5·49	5·46	+ 0·03	19·57	25·45	− 5·88	0·94	Minbu .	UPPER BURMA.	
9				14	7				S 30° E	4·2	4·4			88	·878	7·8	12	10·30	+1·70	7·67	6·65	+ 1·02	26·99	28·19	− 1·20	1·62	Yamethin.		
	1	1	1	6	8	12		1	S 10° W	6·3	6·4			84	·915	5·6	11	8·80	+2·20	6·77	5·62	+ 1·15	23·23	24·00	− 0·77	1·69	Mandalay.		
27	1	1		1					N 52° E	0·5	0·5			95	·916	10·0	19	13·50	+5·50	16·85	13·52	+ 3·33	63·74	59·08	+ 4·66	3·75	Kindat.		
19	1	2	1	1		3		3	N 31° W	2·7	3·2			93	·883	7·5	11	11·50	−0·50	9·21	9·31	− 0·07	61·84	65·05	− 3·21	2·67	Bhamo.		
24		2		1		3			S	2·3				89	·668	7·1	18	15·20	+2·80	13·99	9·06	+ 4·93	46·38	44·28	+ 2·10	1·97	Maymyo .	BURMA HILL STATIONS.	4(a)
																											Taunggyi.		
	8	8	3	1	1	4	2	3	N 12° E	1·9				91	·710	9·0	16			10·49	6·92	+ 3·57	46·32	51·30	− 4·98	2·09	Lashio.		
																				17·04	13·50	+6·35					III.—Assam.		
29						1			S 45° W	1·0	1·7	2·7	— 37	91	·959	8·5	18	15·30	+2·70	10·74	13·95	− 3·21	84·07	91·87	− 7·80	2·65	Silchar .	SURMA.	7
17	1	8				3		1	N 28° E	1·8	1·6	2·5	— 36	97	·941	9·0	20	14·50	+5·50	24·72	11·95	+12·77	74·21	71·82	+ 2·39	7·18	Sibsagar .	BRAHMAPUTRA.	9
3	2	2	11	1	2	4	1	3	S 82° E	4·3	5·1	3·2	+ 59	92	·910	7·8	20	11·90	+8·10	24·09	14·61	+ 9·48	108·97	81·99	+26·98	5·14	Dhubri.		
														89	·919	7·6	14	10·00	+4·00	6·66			37·33			2·30	Gauhati.		
10	2	4	6	1	1	3	3		N 77° E	2·6	2·8			92	·900	8·0	11	12·50	−1·50	6·55			58·40			1·87	Tezpur.		
	5	7	3	1	3	3	1	7	N 4° E	1·8	1·7			92	·856	7·5	22	14·90	+7·10	29·46			107·06			3·77	Dibrugarh.		
																				14·69	11·33	+3·36					IV.—Bengal and Orissa.		
	3	3	3	16	5				S 56° E	6·3	6·2	4·5	+ 38	88	·938	7·5	13	13·06	−0·06	9·77	11·08	− 1·31	101·94	79·95	+21·99	1·98	Chittagong.	EAST BENGAL	8
		2	5	13	7	1	2		S 39° E	?	?			90	·966	6·3	17	15·48	+1·52	14·20	15·54	− 1·34	127·70	94·92	+32·78	2·20	Noakhali.		
2		1	5	5	17				S 24° E	5·1	6·0			90	·939	5·0	8	13·28	−5·28	9·44	11·11	− 1·67	67·45	72·88	− 5·43	2·97	Comilla.		
14		3	5	1	5	1	1		S 56° E	1·9	2·0			94	·964	8·1	19	11·61	+7·39	20·17	9·08	+11·09	70·91	50·76	+20·15	5·08	Sirajganj.		
1		1	4	9	8	6	1		S 18° E	7·3		4·6	+ 59	89	·925	8·2	13	11·83	+1·17	8·21	8·57	− 0·36	60·26	54·97	+ 5·29	2·70	Narayanganj		
5	1	1	1	8	7	4	1	2	S 10° E	2·6				89	·978	6·5	18	14·35	+3·65	18·51	10·74	+ 7·77	100·82	62·26	+38·56	3·52	Barisal.		
14			6	5	4			1	S 52° E	3·3	2·9			90	·949	7·4*	16	15·03	+0·97	10·69	12·83	− 2·14	93·17	72·80	+20·37	1·98	Mymensingh.		
3			3	10	13	1			S 23° E	4·4	3·8			89	·980	5·8	16	11·78	+4·22	10·61	9·09	+ 1·52	69·01	54·69	+14·32	1·88	Faridpur .	DELTAIC BENGAL	10
19			3	6	2				S 49° E	1·4		3·4	— 59	89	1·005	7·0	11	11·94	−0·94	6·86	8·28	− 1·42	49·07	51·35	− 2·28	2·58	Jessore.		
3		3	3	6	7	5	1	2	S 15° E	3·8		4·5	— 16	86	·985	7·5	12	13·38	−1·38	6·98	8·91	− 1·93	51·17	50·59	+ 0·58	1·21	Calcutta.		
		2	5	5	12	1	2	3	S 21° E	11·7		10·1	+ 16	87	1·012	7·7	14	13·29	+0·71	12·43	11·30	+ 1·13	55·02	58·04	− 3·02	3·30	Saugor Island.		
	1	1	5	10	9	1	2	1	S 33° E	3·3	3·7			90	·988	6·3	9	10·45	−1·45	7·98	7·97	+ 0·01	37·54	45·01	− 7·47	2·82	Krishnagar.		
6	4	3		5	9			3	S 45° E	3·2	2·9			87	·973	3·2	9	12·13	−3·13	5·97	9·39	− 3·42	44·17	50·66	− 6·49	1·93	Midnapur.		

* Mean of 29 days.

† Wind variable 8.

Table

Abstract of Observations taken at 8 A.M. at 230 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal	Bankura	298	29·423		29·671	29·607	30th	29·202	8th	·405	81·5	89·7		78·3		84·0		11·4	93·6	23rd	74·4	29th	19·2
		Raniganj	334	29·404		29·687	29·575	30th	29·195	8th	·380	80·7	90·2		77·4		83·8		12·8	94·2	22nd	71·9	29th	22·3
		Burdwan	101	29·652	−·010	29·698	29·813	30th	29·421	8th	·392	82·6	89·9	+0·2	79·5	+0·6	84·7	+0·4	10·4	92·4	17th, 23rd & 28th.	75·3	29th	17·1
		Naya Dumka	489	29·257		29·705	29·434	30th	29·063	8th	·371	80·9	88·6		76·9		82·8		11·7	92·5	5th	70·9	29th	21·6
		Berhampore	67	29·693	0	29·708	29·842	30th	29·466	8th	·376	82·5	89·0	+0·1	78·9	+0·4	83·9	+0·2	10·1	93·3	1st	75·3	29th	18·0
		Rampur Boalia.	70	29·699		29·719	29·840	30th	29·469	8th	·371	82·3	87·7		78·8		83·2		8·9	91·6	1st	74·1	16th	17·5
		Malda	72	29·662		29·686	29·811	30th	29·462	8th	·349	81·5	88·4		78·5		83·5		9·9	94·1	1st	72·5	29th	21·6
		Bogra	61	29·699	−·001	29·713	29·825	30th	29·498	8th	·327	80·4	87·3	−1·1	77·4	−0·1	82·3	−0·6	9·9	92·7	1st	73·2	15th	19·5
12	North Bengal	Dinajpur	123	29·649	+·004	29·726	29·781	30th	29·458	8th	·323	79·9	86·6	−1·6	76·8	−0·6	81·7	−1·1	9·8	95·3	1st	71·5	21st	23·8
		Rangpur	123	29·672		29·750	29·801	30th	29·494	8th	·307	79·6	86·5		76·1‡		81·4‡		10·4‡	95·2	1st	70·8	14th	24·4
		Jalpaiguri	284	29·502	+·009	29·746	29·635	30th	29·327	8th	·308	77·3	84·4	−2·8	75·0*	−0·3	79·9	−1·6	9·4	95·4	1st	71·1	27th & 28th.	24·3
		Cooch Behar	156	29·644		29·757	29·775	30th	29·468	8th	·307	78·1	85·0		76·0		80·5		9·0	95·9	1st	71·6	27th	24·3
17	North Bihar	Purnea	125	29·633	+·001	29·713	29·782	30th	29·451	8th	·331	79·6	87·7	−1·2	77·5‡	+0·1	82·7‡	−0·6	10·2‡	95·2	1st	72·1	23rd	23·1
14	Orissa	Balasore	48	29·699	−·007	29·691	29·834	30th	29·495	8th	·389	82·7	89·4	+0·5	78·6	+0·8	84·0	+0·7	10·8	92·4	23rd	74·3	29th & 30th.	18·1
		False Point	21	29·731	+·005	29·694	29·903	30th	29·509	1st	·394	83·2	88·6	+0·7	79·0	+0·9	83·8	+0·8	9·6	92·5	23rd	75·1	25th & 29th.	17·4
		Cuttack	80	29·666	+·005	29·688	29·853	30th	29·484	1st	·369	82·7	91·4	+1·2	79·0	+0·9	85·2	+1·1	12·4	94·9	5th	75·2	25th & 30th.	19·7
		Puri	24	29·724		29·687	29·910	30th	29·520	1st	·390	83·2	89·0		79·6*		84·3*		9·4*	93·7	5th	75·6	1st	18·1
	V.—Gangetic Plain and Chota Nagpur.				−·008								89·1	−0·9	76·7	+0·2	82·9	−0·4	12·4					22·6
15	Chota Nagpur	Hazaribagh	2,007	27·733	−·014	29·685	27·907	30th	27·540	8th	·367	77·3+	85·6†	+0·9†	73·8†	+1·6†	79·7†	+1·3†	11·8	88·7	23rd	71·3	25th	17·4
		Ranchi	2,128	27·617	−·012	29·687	27·788	30th	27·434	8th	·354	75·8	84·8	+0·4	73·1	+1·6	78·9	+1·0	11·7	89·2	22nd	66·4	28th	22·8
		Daltonganj	730?	28·995		29·683	29·183	30th	28·801	8th	·382	78·8	89·3		75·5		82·4		13·8	93·6	22nd	68·0	28th	25·6
		Purulia		28·911		29·672	29·091	30th	28·706	8th	·385	80·7	89·6		75·2		82·5		14·4	94·5	7th	69·9	28th	24·6
		Chaibassa	760	28·975	−·002	29·685	29·142	30th	28·779	8th	·363	80·2	89·2	?	76·8	+0·7	83·0	?	12·4	92·6	16th	70·5	30th	22·1
16	South Bihar	Gaya	375	29·346	−·015	29·676	29·533	30th	29·167	8th	·366	81·6	90·4	−0·6	77·9	+0·1	84·1	−0·3	12·5	94·2	15th, 21st & 22nd.	72·8	26th	21·4
		Dehri	351	29·368		29·673	29·551	30th	29·189	8th	·362	81·6	89·4		78·1		83·8		11·3	92·8	21st	73·5	2 days	19·3
		Patna	183	29·544	−·019	29·680	29·724	30th	29·351	26th	·373	82·2	88·7	−1·2	77·4	−1·7	83·0	−1·5	11·3	94·0	22nd	72·7	28th	21·3
		Arrah	190	29·551		29·694	29·729	30th	29·385	8th	·344	81·4	89·3		77·7		83·5		11·6	92·5	5 days	72·1	28th	20·4
		Buxar§	239	29·490		29·684	29·670	30th	29·328	8th	·342	81·8	89·3		77·5		83·4		11·8	92·5	4th	73·1	27th	19·4
17	North Bihar	Bhagalpur	160	29·582		29·694	29·751	30th	29·406	8th	·345	81*	89·5		77·9		83·7		11·6	94·2	1st	73·6	2 days	20·6
		Darbhanga	166	29·569	−·016	29·689	29·715	30th	29·415	8th	·300	80·4	87·5	−0·8	78·5	+0·5	83·1	−0·2	9·0	92·3	4th & 20th.	74·5	26th	17·8
		Muzaffarpur	178	29·598‖		29·731‖	29·734	30th	29·439	26th	·295	80·0‖	87·5		77·5		82·5		10·0	92·7	22nd	73·2	3 days	19·5
		Motihari	224	29·527		29·709	29·691	30th	29·377	8th	·314	80·5	88·5		76·4		82·5		12·1	92·9	3 days	71·8	3 days	21·1
		Chapra	181	29·548		29·683	29·721	30th	29·380	8th	·341	81·7	90·1		77·4		83·8		12·7	94·9	22nd	72·6	28th	22·3
18	United Provinces, (East).	Benares	267	29·451	−·013	29·673	29·633	30th	29·292	8th	·341	81·4	90·2	−0·8	76·3	−1·1	83·3	−1·0	13·9	94·8	22nd	69·2	28th	25·6
		Allahabad	309	29·430	+·008	29·691	29·616	30th	29·267	8th	·349	82·0	90·0	−1·5	77·2	+0·3	83·6	−0·6	12·8	94·6	21st & 22nd.	68·8	28th	25·8
23	United Provinces, (East Sub-montane).	Gorakhpur	257	29·481	+·004	29·696	29·638	30th	29·342	8th	·295	80·6	89·5	−1·0	77·4	−0·3	83·5	−0·7	12·1	94·5	2nd & 4th.	72·0	28th & 29th.	22·5
19	South Oudh	Lucknow	368	29·349	−·013	29·676	29·515	30th	29·199	8th	·316	81·4	90·1	−2·0	76·2	−0·3	83·2	−1·2	13·9	95·3	2nd	70·3	28th	25·0
20	North Oudh	Bahraich	401	29·327	+·001	29·688	29·481	30th	29·192	7th	·289	81·7	89·7	−1·3	76·7	+0·5	83·2	−0·4	13·0	95·1	2nd	69·5	28th	25·6
21	United Provinces (Central).	Cawnpore	416	29·305	−·005	29·676	29·472	30th	29·157	8th	·315	81·5	91·3	−1·1	77·0	+0·4	84·2	−0·4	14·3	99·4	3rd	71·0	28th	28·4
		Mainpuri	516	29·198	−·012	29·673	29·360	30th	29·056	7th	·304	81·2	91·3	−1·8	76·3	+0·4	83·8	−0·7	15·0	97·8	2nd	68·5	26th	29·3

* Mean of 29 days. † Mean of 25 days. ‡ Mean of 28 days. ‖ Mean of 21 days. § Observation on 26 days.

I—*continued.*

in India, Burma, etc., in September 1902—continued.

WIND DIRECTION. Number of Winds from									Wind Resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.									Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calms.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th September 1902.	Normal rainfall for period, 1st May to 30th September	Variation from normal of period 1st May to 30th September 1902.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
17	1	2	2	7			1		S 67° E	2·8	3·2			88	·947	5·1	11	12·53	− 1·53	8·98	8·77	+ 0·21	39·02	47·51	− 8·49	2·90	Bankura .	Central Bengal	11
19	1	4		2	1	1	1	1	N 63° E	1·2				90	·918	4·4	12	11·61	+ 0·39	12·82	7·60	+ 5·22	45·42	48·46	− 3·04	2·74	Raniganj .		
7	1	2	3	6	2	7	2		S 13° E	3·0	3·0	3·1	− 3	87	·973	6·9	9	12·10	− 3·10	6·91	8·59	− 1·68	37·59	48·59	−11·00	2·02	Burdwan .		
7		3	3	8	6	2		1	S 42° E	3·8	4·2			87	·919	7·2	13	13·30	− 0·30	17·90	10·01	+ 7·89	50·52	51·12	− 0·60	6·64	Naya Dumka		
3	1	1	4	3	7	6	4	1	S 10° W	3·3	3·5	3·7	− 5	89	·989	7·8	11	12·48	− 1·48	15·39	9·72	+ 5·67	53·42	48·89	+ 6·53	4·64	Berhampur.		
8		2	2	5	7	4	2		S 10° E	2·9	3·0			89	·983	5·4	13	12·36	+ 0·64	19·48	10·38	+ 9·10	68·87	48·61	+20·26	5·00	Rampur Boalia.		
		2	8	10	5	3	1	1	S 47° E	5·1	4·7			89	·953	7·3	11	11·45	− 0·45	9·52	10·86	− 1·34	41·13	45·94	− 4·81	2·10	Malda .		
16			14		4		2		S 72° E	4·6	5·5			91	·942	7·5	14	12·10	+ 1·90	10·96	12·11	− 1·15	69·63	57·31	+12·32	2·74	Bogra .		
		6	9	4	6	2	1	2	S 67° E	4·4	4·2			91	·936	8·6	17	12·56	+ 4·44	20·19	14·00	+ 6·19	72·91	64·01	+ 8·90	6·55	Dinajpur .	North Bengal .	12
8		3	11	2	1	4		1	S 80° E	3·8	4·0			93	·941	6·9	21	13·55	+ 7·45	28·20	14·16	+14·04	84·66	73·51	+11·15	5·10	Rangpur .		
	4	9	9	3	1	1	2	1	N 63° E	2·0	2·5			93	·877	7·1	23	14·75	+ 8·25	52·17	20·03	+32·14	142·33	113·18	+29·15	6·61	Jalpaiguri .		
8	1	4	11	3		1	2		N 86° E	2·6	2·7			93	·896	8·9*	22	14·34	+ 7·66	51·46	21·82	+29·64	163·24	115·23	+ 48·01	7·77	Cooch Behar		
8		5	4	9		1	2	1	S 75° E	4·1	3·6	2·0	+80	92	·937	6·6	18	11·40	+ 6·60	13·72	14·82	− 1·10	47·19	58·57	−11·38	2·86	Purnea .	North Bihar .	17
13	1	2	1		4	6	1	3	S 51° W	3·0				83	·932	3·6	9	13·87	− 4·87	6·54	12·08	− 5·54	45·19	52·39	− 7·20	2·22	Balasore .	Orissa . .	14
	3	2	1	1	5	7	6	5	S 75° W	7·8	7·5	7·9	− 5	85	·968	7·4	9	12·90	− 3·90	7·67	11·11	− 3·44	44·73	50·21	− 5·48	1·86	False Point.		
14			2	2	2	3	6	1	S 45° W	1·4		8·4	−83	83	·932	5·8	7	13·00	− 6·00	5·78	9·97	− 4·19	56·42	49·69	+ 6·73	1·94	Cuttack.		
10	6	1				7	3	3	N 66° W	9·4	8·8			86	·981	5·2	13	12·18	+ 0·82	11·07	10·07	+1·00	51·75	43·04	+ 8·71	2·94	Puri.		
																				12·34	7·22	+5·12					V.—Gangetic Plain and Chota Nagpur.		
3	2	2		2	8	6	3	4	S 45° W	7·4	6·6	7·0	− 6	85	·798	8·1	15	11·97	+ 3·03	12·79	8·88	+ 3·91	39·72	47·33	− 7·61	1·92	Hazaribagh.	Chota Nagpur.	15
1	3	2	1	3	11	3	2	4	S 14° W	4·9	5·8			88	·786	6·9	13	13·66	− 0·66	12·19	9·01	+ 3·18	45·16	48·53	− 3·37	2·64	Ranchi.		
28				2					S 45° E	1·4	1·7			88	·876	3·6	12	10·48	+1·52	14·86	7·54	+ 7·32	30·13	39·30	− 9·17	3·93	Daltonganj.		
19	1	2	2	2	3		1		S 63° E	1·1	1·3			85	·686	5·0	9	11·61	−2·61	12·72	8·14	+ 4·58	44·42	45·66	− 1·24	7·15	Purulia.		
16	1	1	1	1	2	4	4		S 45° W	1·0	0·9			87	·901	4·3	10	12·00	− 2·00	9·45	7·36	+ 2·09	48·86	44·32	+ 4·54	2·16	Chaibassa.		
6	2	5	3	6	2	4	2		S 56° E	4·5	4·1	2·3	+78	87	·943	5·4	17	9·13	+ 7·87	14·34	6·98	+ 7·36	38·68	42·24	− 3·56	2·27	Gaya .	South Bihar .	6
6	1		9	2	6	5	2		S 27° E	7·8	7·0			85	·925	6·5	13	8·94	+ 4·06	10·15	6·46	+ 3·69	40·21	38·37	+ 1·84	2·41	Dehri.		
		4	11	8		3	2	2	S 74° E	6·3	7·1	2·9	+145	89	·979	8·1	14	9·29	+ 4·71	18·83	6·93	+11·90	42·80	42·64	+ 0·16	7·93	Patna.		
4	1	7	3	5	2	1	1	6	N 56° E	2·3	2·4			88	·948	3·0	13	9·29	+ 3·71	8·53	8·23	+ 0·30	36·59	40·50	− 3·91	2·54	Arrah.		
1		1	14	3	1		6		S 80° E	5·0	4·7			87	·947	6·0	14	9·03	+ 4·97	10·74	6·93	+ 3·81	34·86	36·26	− 1·40	2·89	Buxar.		
5		1	8	11	3	1	1		S 54° E	3·8	3·5			87	·943	7·1	13	9·39	+ 3·61	12·34	8·48	+ 3·86	38·31	43·03	− 4·72	3·09	Bhagalpur .	North Bihar .	17
15			6	6		1	1	1	S 63° E	2·6		3·6	−28	91	·945	6·7	13	9·27	+ 3·73	17·34	8·70	+ 8·64	49·33	45·38	+ 3·95	5·46	Darbhanga.		
9		4	9	5			2	1	E	3·7				93‖	·955‖	4·2	13	8·94	+ 4·06	13·19	8·17	+ 5·02	41·46	40·36	+ 1·10	4·17	Muzaffarpur		
	1	6	16	2	2		2	1	N 81° E	5·1	4·9			93	·969	5·2	12	8·97	+ 3·03	15·82	9·62	+10·20	67·30	45·89	+21·41	5·20	Motihari.		
3		2	15	3		4	2	1	S 77° E	2·9	2·6			87	·944	6·9	12	8·35	+ 3·65	14·04	7·22	+ 6·82	30·12	35·99	− 5·87	2·00	Chapra.		
11		1	5	4	1	1	2	2	S 27° E	2·1	2·4	3·9	−38	86	·942	6·1	10	8·40	+1·60	7·63	6·03	+ 1·60	27·63	36·40	− 8·77	2·31	Benares .	United Provinces (East).	18
1		4	8		2	4	7	4	N 65° W	4·2	4·8	5·3	− 9	85	·934	7·0	13	7·40	+ 5·60	9·23	5·16	+ 4·07	39·03	36·05	+ 2·98	1·63	Allahabad.		
8	4	4	4	2	1		1	6	N 19° E	1·5		2·1	−29	91	·949	7·6	15	8·60	+ 6·40	9·28	8·08	+ 1·20	40·52	45·50	− 4·98	1·96	Gorakhpur	United Provinces (East Sub-Montane).	23
11	1	3	7	3		2	3		S 87° E	2·5	2·7	2·8	− 4	84	·907	5·0	10	8·10	+ 1·90	9·76	5·39	+ 4·37	32·42	35·47	− 3·05	2·05	Lucknow .	South Oudh .	19
11		3		12		2	1	1	S 47° E	13·3	12·5			86	·934	4·6	12	7·40	+ 4·60	15·67	6·58	+ 9·09	43·49	43·72	− 0·23	5·68	Bahraich .	North Oudh .	20
8	2	2	2	5	1	4	4	2	S 24° W	3·3				86	·920	6·4	10	6·70	+ 3·30	15·97	5·14	+10·83	26·40	32·46	− 6·06	5·96	Cawnpore .	United Provinces (Central).	21
18			1				6	1	N 22 E	1·1	·1·1			79	·844	6·7	5	6·70	−1·70	2·67	3·74	− 1·07	18·62	27·78	− 9·16	1·02	Mainpuri.		

Table

Abstract of Observations taken at 8 A.M. at 230 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity and Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas.				−·003								92·3	−1·1	74·3	+0·6	83·3	0·3	18·0					31·6
24	United Provinces (West Sub-montane).	Bareilly . .	568	29·150	−·001	29·685	29·283	30th	29·034	7th	·249	79·6	88·5	−2·0	76·1	+0·3	82·3	−0·9	12·4	94·4	2nd & 3rd.	69·6	27th & 28th.	24·8
		Dehra Dun .	2,233	27·526	−·005	29·711	27·651	30th	27·382	7th	·269	73·7	84·8	+0·5	69·9	−0·1	77·4	+0·2	14·9	93·0	23rd	63·5	28th	29·5?
		Roorkee . .	899	28·829	+·001	29·698	28·968	30th	28·682	7th	·286	78·5	90·4	−0·9	73·7	+0·4	82·1	−0·3	16·7	95·2	3rd	64·8	27th	30·4
22	United Provinces West.	Meerut . .	738	28·968	−·015	29·673	29·126	30th	28·826	8th	·300	78·9	91·5	−0·3	74·7	+0·1	83·1	−0·1	16·8	95·6	3rd	65·3	25th	30·3
26	South-East Punjab.	Delhi . .	718	28·998	−·007	29·681	29·152	30th	28·848	8th	·304	80·3	90·4	−2·6	77·4	+0·4	83·9	−1·1	13·0	94·2	3rd & 5th.	72·1	25th	22·1
28	Central Punjab.	Lahore . .	702	29·003	−·002	29·674	29·143	17th	28·805	8th	·338	81·6	96·6	−2·3	74·6	+2·0	85·6	−0·2	22·0	103·4	8th	64·9	27th	38·5
27	South Punjab .	Sirsa . .	662	29·053	−·002	29·677	29·189	30th	28·867	8th	·322	84·0	97·4	−1·5	78·1	+2·4	87·8	+0·5	19·3	102·3	8th	71·6	17th	30·7
		Patiala . .	818	28·898		29·683	29·056	30th	28·739	7th	·317	81·0	92·2		74·2		83·2		18·0	97·5	3rd	66·1	26th	31·4
29	Punjab Sub-montane.	Ludhiana .	812	28·905	−·003	29·688	29·029	17th	28·713	7th	·316	79·6	91·3	−3·6	75·7	+0·9	83·5	−1·4	15·6	95·1	26th	69·1	25th	26·0
		Sialkot . .	830	28·879	−·001	29·682	29·017	17th	28·677	7th	·340	80·4	96·6	+0·9	75·2	+1·4	85·9	+1·2	21·4	104·2	4th	65·6	17th	38·6
		Umballa . .	892	28·834	+·007	29·696	28·957	30th	28·664	7th	·293	78·9	93·6	−0·1	72·3	−1·6	83·0	−0·9	21·3	97·0	4th	64·0	24th & 25th.	33·0
31	North Punjab .	Rawalpindi .	1,674	28·063	−·005	29·712	28·205	16th	27·853	8th	·352	77·5	93·7	+0·1	69·1	+0·2	81·4	+0·2	24·6	104·0	4th	62·1	24th, 25th & 26th.	41·9
	VII.—N. W. Frontier Province, Indus Valley and North-West Rajputana.				−·013								98·3	+0·2	76·7	+0·9	87·5	+0·6	21·6					36·7
31	North Punjab .	Peshawar .	1,110	28·620	−·012	29·711	28·772	17th	28·378	8th	·394	80·6	97·3	+1·3	70·4	+0·3	83·9	+0·8	26·9	104·5	4th & 8th	62·0	29th	42·5
32	West Punjab .	Khushab .	612	29·100	?	29·682	29·250	17th	28·869	8th	·381	82·6	98·2	−1·4	76·0	+0·2	87·1	−0·6	22·2	105·3	11th	67·4	27th	37·9
		Montgomery .	558	29·137	−·005	29·657	29·286	17th	28·927	8th	·359	86·5	100·4	−1·3	77·8	+1·7	89·1	+0·2	22·6	106·0	9th	69·5	23rd & 27th.	36·5
		D. I. Khan .	590	29·109	−·011	29·648	29·303	17th	28·876	8th	·427	82·5	100·3	−0·2	74·7	−0·2	87·5	−0·2	25·6	106·2	3rd & 4th	61·6	26th	44·6
		Mooltan .	420	29·259	−·013	29·645	29·429	17th	29·045	8th	·384	85·4	103·3	+3·0	79·6	+2·0	91·5	+2·5	23·7	108·4	12th	71·0	22nd, 23rd & 27th.	38·4
47	Sind . . .	Jacobabad .	186	29·498	−·017	29·645	29·652	17th	29·307	8th	·345	83·8	104·8	+1·3	76·7	+0·7	90·8	+1·0	28·1	111·8	3rd	64·6	24th & 25th.	47·2
		Hyderabad .	96	29·620	−·013	29·669	29·746	30th	29·434	8th	·312	81·7	96·1	−1·4	76·8	+0·6	86·5	−0·4	19·3	103·1	22nd	72·0	26th	31·1
		Kurrachee .	30	29·732	−·018	29·713	29·871	30th	29·530	8th	·341	82·3	91·2	+2·4	79·3	+2·4	85·3	+2·4	11·9	98·4	19th	75·2	16th & 26th.	23·2
51	West Rajputana	Bikaner* .	771	28·947	−·014	29·682	29·109	30th	28·789	8th	·320	84·0	97·7	−0·8	79·0	−0·2	88·4	−0·5	18·7	105·1	13th	73·0	21st	32·1
		Pachpadra .	380	29·377	?	29·714	29·553	30th	29·225	8th	·328	81·7	96·6	−0·6	76·6	+1·4	86·6	+0·4	20·0	105·0	12th	69·0	26th, 29th & 30th.	36·0
		Jodhpur .	782	28·963		29·727	29·143	30th	28·822	3rd	·321	81·2	94·9		76·6		85·8		18·3	101·2	13th	67·3	29th	33·9
	VIII.—East Rajputana, Central India and Gujarat.				−·021								89·3	−1·3	75·1	+0·8	82·2	−0·2	14·2					25·4
50	East Rajputana	Jaipur . .	1,431	28·329	−·014	29·720	29·495	30th	28·196	8th	·299	80·1	93·2	−1·0	74·1	+0·5	83·7	−0·3	19·1	101·2	16th	66·1	27th	35·1
		Bharatpur .	585	29·134		29·67	29·300	30th	28·992	2nd, 6th & 7th.	·308	80·7	93·9		76·3		85·1		17·6	99·4	18th & 21st.	70·2	26th	29·2
		Kotah . .	819	28·907		29·727	29·076	30th	28·741	3rd	·335	81·0	90·5		76·2		83·4		14·3	94·5	17th	70·1	27th	24·4
		Sambhar .	1,254	28·494	−·005?	29·713	28·670	30th	28·366	8th	·304	80·4	94·5	+0·8	75·5	+0·4	85·0	+0·6	19·0	101·5	16th	67·5	27th	34·0
		Ajmer . .	1,611	28·147	−·020	29·721	28·315	30th	28·012	8th	·303	78·8	88·6	−2·2	75·9	+2·3	82·3	+0·1	12·7	94·4	20th	69·1	22nd	25·3
		Udaipur .	1,925	27·859		29·740	28·016	30th	27·690	3rd	·326	77·3	85·7		70·9		78·3		14·8	90·0	3rd	61·3	26th	28·7
		Deesa . .	466	29·305	−·030	29·731	29·480	30th	29·141	3rd	·339	80·4	92·4	−0·4	76·3	+2·4	84·4	+1·0	16·1	98·1	11th & 19th	69·5	29th	28·6
46	Kathiawar and Cutch.	Bhuj . .	395	29·381	−·016	29·730	29·542	30th	29·200	8th	·342	80·4	91·5	−0·6	75·7	+1·1	83·6	+0·3	15·8	95·8	15th & 22nd.	69·9	30th	25·9
		Jamnagar .	61	29·738		29·745	29·891	30th	29·565	8th	·326	81·0	89·5		75·7		82·6		13·8	93·0	12th, 21st & 24th.	68·2	30th	24·8
		Rajkot . .	429	29·355	−·019	29·751	29·525	30th	29·205	8th	·320	78·1	89·3	−2·1	73·0	+0·6	81·2	−0·8	16·3	93·4	14th & 24th.	66·9	28th, 29th & 30th.	26·5
		Veraval . .	8	29·795	−·027	29·755	29·943	30th	29·632	8th	·311	79·8	83·6	−0·2	76·3	0	80·0	−0·1	7·3	86·6	16th & 17th	70·3	30th	16·3
		Dwarka . .	37	29·710?		29·689?†	29·806	16th & 17th,	29·584	8th	·222	80·5	85·5		77·7		81·6		7·8	88·4	18th	74·7	4th	13·7
		Bhavnagar Para	55	29·761	−·042	29·763	29·936	30th	29·597	3rd	·339	79·6	90·0	−3·0	75·0	?	82·5	?	15·0	93·6	24th	68·8	30th	24·8
49	Central India .	Nowgong .	757	28·975	−·010	29·691	29·158	30th	28·834	8th	·324	79·4	88·4	−2·0	75·6	+0·6	82·0	−0·7	12·8	92·0	21st	65·0	27th	27·0
		Indore . .	1,823	27·978	?	29·756	28·125	30th	27·827	3rd	·298	74·9	84·2	−1·2	70·3	+0·2	77·3	−0·5	13·9	87·3	5 days	62·1	27th	25·2
		Neemuch .	1,630	28·150	−·008	29·744	28·308	30th	27·994	3rd	·314	75·9	86·2	−1·7	71·2	+0·3	78·7	−0·7	15·0	90·0	15th & 16th.	63·0	25th & 26th.	27·0
45	Gujarat . .	Surat . .	39	29·783	−·017	29·765	29·940	30th	29·624	3rd	·316	80·8	87·5	−1·0	75·7	+0·2	81·6	−0·4	11·8	90·6	11th & 27th.	71·5	26th	19·1
		Ahmedabad .	163	29·620	−·044	29·731	29·793	30th	29·410	3rd	·383	80·1	89·5	−2·6	76·6	+0·4	83·1	−1·1	12·9	94·2	15th & 16th.	72·1	27th	22·1

* Observations of 29 days.

† Mean of 18 days.

I—*continued.*

in India, Burma, etc., in September, 1902—continued.

WIND DIRECTION. Number of Winds from									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.		Mean cloud amount.	RAINFALL.								Heaviest rainfall during month.	STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th September 1902.	Normal rainfall for period 1st May to 30th September.	Variation from normal of period, 1st May to 30th September 1902.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	5
																											VI.—Upper Sub-Himalayas		
22			5				1	2	N 61° E	0·7	0·7	3·0	−77	89	·906	4·7	10	6·73	+3·27	4·71 9·89	4·49 7·01	+0·12 +2·88	38·92	43·63	−4·71	2·50	Bareilly	United Provinces (West Sub-Montane).	24
22			1	1	3	1	2		S 13° W	0·9		1·1	−18	84	·714	5·7	13	10·20	+2·80	9·85	9·74	+0·11	54·72	80·95	−26·23	2·55	Dehra Dun.		
17		1	1	6	3			2	S 42° E	1·5		2·0	−25	83	3·10	4·7	4	5·70	−1·70	4·47	6·04	−1·57	41·24	37·87	+3.37	1·57	Roorkee.		
6	2		5	4	1	4	5	3	S 41° W	1·0	1·0	2·1	−52	78	·792	4·4	4	5·00	−1·00	2·96	5·30	−2·34	32·31	28·04	+4·37	2·10	Meerut .	United Provinces West.	22
4	1	5	1	4	1	1	5	8	N 36° W	4·0	3·6	3·8	− 5	75	·786	5·1	5	4·10	+0·90	3·35	3·61	−0·26	26·85	24·74	+2·11	1·35	Delhi .	South-East Punjab.	26
12		1		9	1		6	1	S 3° E	2·0		2·0	0	73	·800	1·6	3	2·30	+0·70	2·45	1·99	+0·46	10·55	16·16	−5·61	1·79	Lahore .	Central Punjab	28
1	2	4	6	5	3	6	2	1	S 45° E	5·0	4·6	3·6	+28	66	·760	0·9	1	3·20	−2·20	0·24	1·74	−1·50	6·57	12·25	−5·68	0·10	Sirsa .	South Punjab.	27
4	2	2	4	9	2	1	1	5	S 74° E	3·9	4·0			78	·827	4·0	3			5·91			14·71			3·31	Patiala.		
12		2	1	11	1	2	1		S 42° E	1·8	1·6	1·1	+45	77	·796	2·5	7	3·40	+3·60	7·81	3·61	+4·20	21·74	22·86	−1·12	4·36	Ludhiana .	Punjab (Sub-Montane).	29
8	2	5	8	3	1	1		2	N 75° E	1·5		1·6	− 6	69	·729	1·9	5	3·30	+1·70	1·74	2·83	−1·09	19·47	24·64	−5·17	0·78	Sialkot.		
12			4	12				2	S 58° E	1·6				86	·857	4·8	6	3·90	+2·10	4·13	4·24	−0·11	22·88	26·94	−4·06	1·82	Umballa.		
27		1	1	1					E	1·0	0·9	1·3	−31	66	·647	2·5	6	4·20	+1·80	3·74	3·23	+0·51	20 88	23·94	−3·06	1·12	Rawalpindi.	North Punjab.	31
																				1·42	0·76	+0·66					VII.—N. W. Frontier Province, Indus Valley and North-West Rajputana.		
20	1	2					2	5	N 34° W	1·8	2·0	3·1	−35	60	·637	1·4	1	1·40	−0·40	0·57	0·52	+0·05	2·02	5·59	−3·57	0·50	Peshawar .	North Punjab.	31
5	1	15	3	2			2	2	N 45° E	6·8	5·8			62	·697	1·7	2	1·60	+0·40	1·52	0·54	+0·98	11·75	10·29	+1·46	0·85	Khushab .	West Punjab.	32
1	1	2	4	5	3	10	4		S 10° W	8·6	7·4			53	·688	1·1	1	1·30	−0·30	0·57	0·87	−0·30	4·57	7·75	−3·18	0·46	Montgomery		
17	3	8	1	1					N 43° E	2·0	2·1	1·7	+24	67	·757	0·6	0	1·00	−1·00	0	0·28	−0·28	4·86	5·28	−0·42	0	D. I. Khan.		
7	1	5		9	2	6			S 35° E	1·9	2·3	2·8	−18	65	·799	0·8	0	0·70	−0·70	0	0·32	−0·32	4·56	5·67	−1·11	0	Mooltan.		
20	4	1	1	3	1				N 66° E	1·5	1·6	3·1	−48	75	·870	1·1	2	0·50	+1·50	0·50	0·07	+0·43	2·01	2·67	−0·66	0·34	Jacobabad.	Sind.	47
4	3	1			2	16	3	1	S 58° W	9·5	9·9	12·5	−21	71	·758	2·1	4	0·80	+3·20	5·69	0·41	+5·28	15·93	6·07	+9·86	3·47	Hyderabad.		
1					2	11	13	3	S 72° W	9·9	12·4	14·9	−17	79	·858	3·4	2	0·60	+1·40	3·12	0·51	+2·61	10·96	6·65	+4·31	1·92	Kurrachee.		
2			4	4	3	8	7	1	S 31° W	8·3		5·6	+48	64	·760	2·8	3	1·90	+1·10	1·41	0·94	+0·47	5·67	10·03	−4·36	0·74	Bikaner .	West Rajputana	51
			2		13	9	5		S 25° W			6·1		82	·887	3·0	4	2·50	+1·50	0·95	2·11	−1·16	5·05	12·42	−7·37	0·34	Pachpadra.		
2		2	1		3	15	6	1	S 54° W	5·2	4·7			73	·781	4·8	4	2·50	+1·50	1·27 6·97	1·75 4·36	−0·48 +2·86	6·90	12·26	−5·36	0·29	Jodhpur.		
																											VIII.—East Rajputana, Central India and Gujarat		
2	1	7	4		1	1	8	6	N 26° W	3·4		5·2	−35	73	·760	4·8	6	4·90	+1·10	8·15	3·56	+4·59	18·63	24·26	−5·63	2·95	Jaipur .	East Rajputana	50
4	3	9	4	1		1	7	1	N 18° E	3·1	2·8			83	·868	5·5	7			5·08			29·50			2·10	Bharatpur.		
	4	1		1	1	8	9	6	N 85° W	5·5	6·5			75	·797	2·9	7	5·10	+1·90	6·80	5·16	+1·64	23·43	28·61	− 5·18	3·43	Kotah.		
1	4	5	3		2	1	7	7	N 32° W	5·7		7·2	−21	70	·734	3·5	5	3·80	+1·20	2·58	2·80	−0·22	13·00	19·14	− 6·14	1·17	Sambhar.		
3		4		1		9	11	2	S 80° W			5·0		83	·815	4·9	7	4·10	+2·90	5·41	2·33	+3·11	16·91	20·09	− 3·18	3·05	Ajmer.		
22		1			1	2	3	1	S 77° W	2·0	2·0			83	·781	4·2	11	6·10	+4·90	12·18			20·52			2·93	Udaipur.		
	1	2	1	1	6	9	7	3	S 55° W	7·1		8·5	−16	82	·854	5·5	7	3·73	+3·27	6·84	3·98	+2·86	13·43	23·33	— 9·90	3·00	Deesa.		
					1	10	8	11	S 89° W	8·0	6·7	11·3	−41	84	·866	5·2	3	2·00	+1·00	3·50	1·68	+1·82	9·98	13·71	— 3·73	2·14	Bhuj . .	Kathiawar and Cutch.	46
				1	6	12	8	3	S 54° W	12·3	14·6			82	·873	4·8	4			3·94			10·17			1·77	Jamnagar.		
1	1					6	18	4	S 89° W	9·3	9·2	8·5	+ 8	88	·847	6·5	11	5·10	+5·90	13·61	3·96	+9.65	24·70	27·13	−2·43	3·84	Rajkot.		
	3	3	2	1	2	2	9	8	N 60° W	8·6	8·6	8·6	0	89	·897	5·5	9	4·60	+4·40	4·07	1·99	+2·08	16·42	16 78	− 0·36	0·98	Veraval.		
	1				1	10	13	5	S 81° W	10·4				86	·894	5·1	2			2 76			12·97			2·40	Dwarka.		
	1					14	8	7	S 82° W	7·9	7·4			82	·826	6·9	15	7·80	+7·20	8·31	4·43	+3·88	21·53	18·70	+2·83	1·50	Bhavnagar Para.		
10		2	1	2	1	4	9	1	S 71° W	1·5	1·5	2·4	−38	85	·865	6·0	10	7·00	+3·00	5·97	5·24	+0·73	40·70	41·43	−0·73	2·26	Nowgong .	Central India.	40
	1	1		2	2	2	7	15	N 65° W	6·9	4·9	4·3	+ 2	87	·763	7·2	8	8·80	−0·80	6·68	7·68	−1·00	25·73	31·18	−5·45	1·86	Indore.		
	1	3		2	1	7	15	1	S 79° W	7·7	6·9	10·2	−32	84	·763	5·9	11	6·50	+4·50	4·78	5·11	−0·33	27·15	28·69	−1·54	0·90	Neemuch.		
4	3	3	1		2	6	7	4	N 81° W	4·6	4·3	9·2	−52	84	·887	6·0	15	7·00	+8·00	14·39	7·01	+7·38	53·46	41·73	+11·73	3·32	Surat .	Gujarat.	45
	3		1	1	1	8	2	14	N 71° W	2·7	4·4			86	·878	6·2	10	5·80	+4·20	13·05	4·77	+8·28	27·90	31·79	−3·89	4·87	Ahmedabad		

Table

Abstract of Observations taken at 8 A.M. at 230 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
22	United Provinces West.	Agra	555	29·165	−·021	29·681	29·327	30th	29·032	7th	·295	81·1	92·1	−1·0	77·8	+1·1	85·0	+0·1	14·3	97·5	3rd	69·4	26th	28·1
21	United Provinces Central.	Jhansi	858	28·883	−·007	29·700	29·038	30th	28·745	8th	·293	79·8	89·4	−2·3	76·5	+0·7	83·0	−0·8	12·9	93·2	16th, 17th & 21st.	70·6	28th & 30th	22·6
	IX.—Deccan				−·003								87·0	−0·1	72·2	+0·5	79·6	+0·2	14·8					24·8
38	Bombay Deccan	Belgaum	2,539	27·352	−·007	29·814	27·438	30th	27·257	2nd	·181	70·4	78·5	−0·4	66·2	+0·9	72·4	+0·3	12·3	83·3	28th	58·9	30th	24·4
		Sholapur	1,590	28·244	−·017	29·788	28·358	30th	28·148	2nd	·210	76·3	89·1	+0·7	72·1	+1·7	80·6†	+1·2	17·0	94·2	8th	69·5	26th	24·7
		Poona	1,840	28·003	−·020	29·801	28·118	30th	27·891	2nd	·227	73·3	84·2	−0·2	62·3	+0·7	76·8	+0·3	14·9	90·0	28th	61·9	26th	25·1
		Bijapur	1,946	27·910	−·007	29·801	28·007	30th	27·819	2nd	·188	75·5	88·1	+2·2	70·4	+0·8	79·3	+1·5	17·7	91·4	5th & 28th	68·3	13th & 29th	23·1
40	Khandesh	Malegaon	1,430	28·370	−·024	29·760	28·508	30th	28·238	3rd	·270	76·5	87·7	−0·2	71·3	+1·1	79·5	+0·5	16·4	91·4	12th	62·1	25th	29·3
		Ahmednagar	2,152	27·702	−·004	29·801	27·627	30th	27·577	2nd	·250	74·2	84·7	−0·5	69·1	+1·1	76·9	+0·3	15·6	89·9	14th	64·5	25th	25·4
41	Berar	Akola	930	28·865?	−·005?	29·749?	29·015	30th	28·717	2nd	·298	78·2	89·0	−0·1	73·4	+0·7	81·2	+0·3	15·6	92·4	21st, 26th & 28th.	67·8	27th	24·6
		Amraoti	1,215	28·579	+·010	29·752	28·736	30th	28·427	2nd	·309	77·9	88·1	−0·3	73·2	+1·1	80·7	+0·4	14·9	93·2	26th	68·5	26th, 27th	24·7
42	Central Provinces, West.	Khandwa	1,044	28·741	−·005	29·750	28·894	30th	28·606	2nd	·288	78·0	87·2	−0·9	73·9	+0·7	80·6	−0·1	13·3	92·7	16th	68·6	27th	24·1
		Hoshangabad	1,006	28·775	−·001	29·747	28·945	30th	28·621	2nd	·324	77·5	87·3	−0·8	74·2†	+0·8†	80·1†	0	13·1	91·2	16th	66·2	28th	25·0
		Nagpur	1,025	28·751	+·012	29·735	28·928	30th	28·567	2nd	·341	78·4	88·8	−0·5	74·4	+0·6	81·6	+0·1	14·4	92·1	11th, 27th	68·1	28th	24·0
43	Central Provinces, Central.	Chanda	634	29·167	+·020	29·748	29·391	30th	29·020	2nd	·321	79·4	89·4	+0·3	74·1	−0·4	81·8	−0·1	15·3	93·2	21st	66·5	27th	26·7
		Seoni	2,033	27·747	+·003	29·720	27·929	30th	27·579	2nd	·350	76·4	85·3	−0·3	71·0	+0·4	78·2	+0·1	14·3	88·8	21st	64·0	28th	24·8
		Jubbulpore	1,327	28·419	−·007	29·707	28·603	30th	28·233	2nd	·370	77·0	86·2	−1·2	72·4	−0·4	79·3	−0·8	13·8	90·9	22nd	64·2	28th	26·7
		Saugor	1,807	27·966	+·004	29·729	28·134	30th	27·813	2nd	·321	76·0	85·4	−1·2	71·7	+0·2	78·6	−0·5	13·7	90·4	21st	65·1	26th, 27th & 28th.	25·3
49	Central India	Sutna	1,040	28·692	−·003	29·695	28·875	30th	28·544	8th	·331	79·2	87·3	−0·7	76·0	+1·4	81·7	+0·4	11·3	90·9	17th	67·6	28th	23·3
44	Central Provinces, East.	Raipur	970	28·786	+·005	29·707	28·969	30th	28·636	2nd	·333	79·6	88·8	+0·6	72·2	−2·6	80·5	−1·0	16·6	92·3	22nd, 26th.	64·9	28th	27·4
		Sambalpur	486	28·272	−·002	29·707	29·458	30th	29·113	8th	·345	81·3	89·6	+0·3	76·4	−0·9	83·0	−0·3	13·2	92·1	16th, 19th & 22nd	70·6	30th	21·5
39	Hyderabad (North).	Aurangabad	1,905	27·921		29·773	28·057	30th	27·812	2nd	·245	74·9	85·1		69·0		77·0		16·1	93·4	25th	63·7	23rd	28·7
		Indur		28·536			28·669	30th	28·417	2nd	252	77·6	87·1		73·1		80·1		14·0	96·3		68·2	27th	28·1
		Bidar	2,165?	27·664		29·769	27·780	30th	27·580	2nd	·200	75·0	84·0		69·1?		76·6?		14·9?	88·8	4th	65·5	6th	23·3
53	Hyderabad (South).	Gulbarga	1,503	28·331	−·013	29·788	28·431	30th	28·239	2nd	·192	76·4	88·5	+0·9	72·0	+1·2	80·3	+1·1	16·5	92·9	4th	68·8	30th	24·1
		Raichur	1,326	28·516	−·003	29·800	28·624	30th	28·432	2nd	·192	76·7	87·9	+0·2	72·6	+0·4	80·2	+0·3	15·3	93·1	5th	71·1	3rd, 8th & 19th.	22·0
		Hyderabad (Deccan).	1,690	28·136	−·004	29·776	28·273	30th	28·037	2nd	·236	76·1	86·1	−0·6	72·4	+1·6	79·3	+0·5	13·7	90·9	28th	69·7	30th	21·2
		Secunderabad.	1,787	28·041	−·001	29·778	28·180	30th	27·936	1st	·244	75·6	87·5	+0·8	71·5	+0·7	79·5	+0·8	16·0	91·6	5th	68·5	30th	23·1
		Hanumkonda	871	28·916		29·736	29·071	30th	28·800	1st	·271	78·8	87·9		74·3		81·2		13·6	92·0	12th	68·3	30th	23·7
	X.—West Coast				−·003								83·2	−0·4	74·9	+0·3	79·1	−0·1	8·3					13·4
37	Konkan	Bombay	37	29·816	−·018	29·793	29·940	30th	29·696	5th	·244	79·2	84·5	0	77·3	+0·8	80·9	+0·4	7·2	87·0	13th & 25th. 5 days	73·5	17th	13·5
		Ratnagiri	110	29·768	?	29·817	29·880	30th	29·674	8th	·206	78·8	83·7	−0·5	74·8	+0·4	79·3	−0·1	8·9	85·4		72·4	29th	13·0
		Mormugao	60	29·836	−·009	29·831	29·934	30th	29·760	2nd	·174	78·3	83·4	−0·1	75·4	+0·3	79·4	+0·1	8·0	86·5	4th	73·9	6th	12·6
		Goa	199									77·9	81·4	−1·2	76·2	+0·7	78·8	−0·3	5·2	83·0	4th, 26th & 30th.	75·0	7 days	8·0
		Karwar	44	29·858	−·003	29·834	29·946	30th	29·788	2nd	·158	77·7	83·1	+0·4	74·5	+0·6	78·8	+0·5	8·6	85·2	2nd & 3rd.	71·0	30th	14·2
33	Malabar	Cochin	10	29·837	+·006	29·875	29·979	6th	29·800	13th	·079	78·5	84·9	+0·3	74·7	+0·2	79·8	+0·3	10·2	89·3	23rd	72·7	5 days	16·6
		Calicut	27	29·908	+·001	29·865	29·947	4th	29·859	13th	·088	77·3	83·2	−1·1	73·2	−1·2	78·2	−1·2	10·0	86·8	21st	70·5	8th & 9th.	16·3
		Mangalore	65	29·858	−·008	29·855	29·906	30th	29·803	13th	·103	77·5	82·3	−1·0	73·6	−0·5	78·0	−0·8	8·7	85·2	4th	71·4	29th	12·8
		Trivandrum	198	29·743	+·013	29·873	29·782	6th	29·711	18th & 23rd.	·071	77·7	82·4	−0·5	74·7	+1·6	78·6	+0·6	7·7	85·0	28th, 29th & 30th.	72·5	6th & 11th.	12·5
	XI.—South India				+·002								90·2	−0·1	74·6	+0·5	82·3	+0·2	15·7					24·1
37	Madras (South).	Pamban	37	29·860		29·824	29·932	30th	29·819	13th & 24th.	·113	83·2	89·0		79·2		84·2		9·8	91·3	24th & 26th.	77·2	27th	14·1
		Tinnevelly	168	29·725	+·008	29·822	29·764	30th	29·671	18th	·113	84·8	97·1	−0·7	78·6	0	87·9	−0·4	18·5	101·4	26th & 29th.	74·9	6th	26·5
		Madura	447	29·436	+·015	29·818	29·497	30th	29·394	13th	·103	83·8	96·9	+1·6	76·1	+0·8	86·5	+1·2	20·8	100·5	4th & 24th.	73·0	26th	27·5
		Periyakulam	945	28·948			29·006	30th	28·906	13th	·100	80·5	94·8		72·2		81·8		22·6	99·1	22nd	68·5	22nd	30·6

† Mean of 17 days.

1—*continued.*

in India, Burma, etc., in September, 1902—continued.

WIND DIRECTION. Number of Winds from									Wind Resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.		Mean cloud amount.	RAINFALL.								Heaviest rainfall during month.	STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th September 1902.	Normal rainfall for period, 1st May to 30th September.	Variation from normal of period, 1st May to 30th September 1902.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
3	1	2		4		12		8	S 73° W	4·1	4·7	4·1	+15	79	·836	4·9	8	4·80	+3·20	4·39	4·23	+ 0·16	22·53	26·43	− 3·90	2·46	Agra	UNITED PROVINCES WEST.	22
5	1	4		2		11	5	2	S 68° W	3·4	3·8	3·2	+19	83	·853	2·7	11	6·80	+4·20	6·94	5·89	+ 1·05	32·51	36·09	− 3·58	1·75	Jhansi	UNITED PROVINCES CENTRAL.	21
																				7·74	7·57	+0·24					IX.—Deccan.		
6						12	11	1	S 69° W	17·0		16·7	+2	92	·682	7·6	11	9·10	+1·90	3·86	4·63	− 0·97	33·23	39·89	− 6·66	1·18	Belgaum	BOMBAY DECCAN	38
	1	1			1	8	6	13	N 78° W	10·6	12·8	9·9	+29	79	·708	6·7	9	9·50	−0·50	13·82	8·77	+ 5·05	21·82	24·41	− 2·59	5·69	Sholapur.		
					1	9	12	8	S 86° W	11·0	12·4	11·4	+ 9	86	·698	6·8	7	8·10	−1·10	2·67	5·00	− 2·33	17·64	21·42	− 3·78	0·99	Poona.		
	2					4	22	2	N 85° W					78	·693	6·7	8	9·70	−1·70	4·39	7·61	− 3·22	11·58	17·44	− 5·86	1·49	Bijapur.		
	2				1	7	12	8	N 86 W	5·5	6·3	7·6	− 17	81	·750	6·2	10	7·80	+2·20	5·21	6·90	− 1·69	16·75	20·62	− 3·87	1·27	Malegaon	KHANDESH.	40
4	1	3				6	6	10	N 68° W	6·4	7·8			79	·675	7·1	8	9·80	−1·80	15·74	6·98	+ 8·76	24·19	18·13	+ 6·06	5·86	Ahmednagar.		
4	1			1		3	13	8	N 79° W	4·9	4·8	5·8	−17	82	·788	6·9	7	8·40	−1·40	4·40	6·52	− 2·12	24·34	29·00	− 4·66	1·01	Akola	BERAR.	41
	1	1		2	3	6	12	5	S 79° W	6·6	5·9	4·4	+34	81	·786	6·5	6	7·50	−1·50	2·77	6·26	− 3·49	23·74	30·03	− 6·29	1·15	Amraoti.		
4	1			1		2	15	7	N 79° W	5·2		6·2	−16	82	·778	6·4	8	7·70	+0·30	5·07	6·58	− 1·51	28·81	28·68	+ 0·13	1·65	Khandwa	CENTRAL PROVINCES, WEST.	42
		2		1		25		2	S 48° W	2·5	2·6	2·5	+4	89	·842	5·5	10	10·00	−0·00	6·89	9·66	− 2·77	28·70	48·49	−19·79	1·87	Hoshangabad.		
7	5	1	1			4	4	8	N 52° W	5·5		6·1	−10	85	·825	6·7	10	10·00	−0·00	4·09	9·04	− 4·95	25·24	44·00	−18·76	1·49	Nagpur.		
8	1		3	1	4	3	5	5	S 71° W	6·7	0·0	4·1	+46	88	·840	4·9	9	11·30	−2·30	10·10	9·48	+ 0·62	28·27	49·88	−21·61	1·75	Charda	CENTRAL PROVINCES CENTRAL.	43
	6		1	3	4	6	2	8	N 88° W	3·3		3·8	−15	81	·742	4·9	7	11·40	−4·40	4·85	9·51	− 4·66	27·59	49·72	−22·13	1·62	Seoni.		
		2		2	7	7	10	2	S 52° W	2·9	2·6	3·4	−24	89	·831	4·8	12	9·80	+2·20	9·03	7·90	+ 1·13	35·06	54·58	−18·52	3·00	Jubbulpore.		
		4		4		3	17	2	S 57° W	5·3	6·0	5·3	+82	83	·752	5·1	14	9·70	+4·30	8·91	7·31	+ 1·60	31·04	44·84	−13·80	2·00	Saugor.		
1		2	5	2		6	13	1	S 71° W	4·8	5·1	6·3	−22	88	·879	7·0	13	8·70	+4·30	7·15	6·10	+ 1·05	31·90	40·55	− 8·65	2·15	Sutna	CENTRAL INDIA	11
7					7	11	2	3	S 43° W	4·5	4·1	5·9	−31	81	·807	3·9	9	10·00	−1·00	7·73	7·39	+ 0·34	27·09	46·12	−19·03	1·84	Raipur	CENTRAL PROVINCES, EAST.	14
	2		1	3	4	9	3	8	S 08° W	3·9	3·8	2·2	+73	82	·880	6·5	7	11·80	−4·80	4·12	8·78	− 4·66	49·98	62·18	−12·20	1·40	Sambalpur.		
7		2				6	14	1	S 88° W	9·7	9·6			81	·698	6·8	11	9·00	+1·00	12·86	7·14	+ 5·72	23·49	26·30	− 2·81	4·02	Aurangabad	HYDERABAD (NORTH).	39
7	9	1				4	1	8	N 35° W	6·2	5·2			80	·735	6·0	9	10·30	−1·30	5·76	8·29	− 2·53	30·48	35·05	− 4·57	1·70	Indur		
	2		1	1	2	15	6	3	S 62° W	10·7	9·0			83	·719	4·4	12	11·90	+0·10	8·54	9·21	− 0·67	20·04	33·14	−12·50	1·68	Bidar.		
4	2	2				2	14	6	N 72° W	9·4	9·9			82	·747	5·8	11	1·20	−0·20	11·62	9·33	+ 2·29	21·74	26·26	− 4·52	4·55	Gulbarga	HYDERABAD (SOUTH).	53
						20	5	5	S 65° W	10·0	9·5			80	·731	3·1	15	5·80	+5·20	13·74	6·41	+ 5·30	20·56	24·33	− 3·77	4·85	Raichur.		
5							21	4	N 83° W	5·5	5·3			81	·735	6·7	12			10·80	6·04	+ 4·76	19·81	25·74	− 5·93	2·18	Hyderabad (Deccan).		
4	1	1					14	10	N 47° W	5·9		7·0	−16	82	·736	6·1	12	10·00	+2·00	11·04	6·04	+ 5·00	20·17	25·74	− 5·57	4·60	Secunderabad.		
10	1			3	1	2	6	7	N 82° W	4·2	3·6			80	·701	6·1	8	10·30	−2·30	6·03			17·96			1·34	Hanmakonda		
																				22·60	9·20	+13·40					X.—West Coast.		
	1	2	4	5	1	4	7	6	S 82° W	9·0		11·7	−23	90	·809	7·8	17	14·00	+3·00	27·05	11·75	+15·30	70·57	72·21	−1·64	5·97	Bombay	KONKAN.	37
6		3	3	6		2	8	2	S 35° W	4·9	4·9	8·2	−40	89	·877	6·6	21	15·60	+5·40	26·55	12·52	+14·03	89·10	102·14	−13·04	4·54	Ratnagiri.		
5	3	2	3	3			6	8	N 33° W	7·8				93	·818	7·0	23			22·22	8·34	+13·88	118·35	85·01	+33·34	5·00	Mormugao.		
4	1	5	4	2	1	3	6	4	N 20° W					89	·815	7·5	23			28·21	8·37	+19·84	121·38	91·24	+30·14	3·30	Goa.		
14	1	1	1	1	1	3	6	2	S 85° W	3·4				88	·832	6·2	20	15·10	+4·90	24·71	13·76	+11·95	141·31	113·71	+27·60	2·56	Karwar.		
2	3	15	3	2		1	3	1	N 41° E	5·1				88	·859	7·0	15	14·20	+0·80	15·63	8·98	+ 6·65	92·11	85·04	+ 7·07	2·58	Cochin	MALABAR.	33
12	3	3	1	1	1	1	3	5	N 29° W	5·3	6·7			89	·836	6·8	21	12·20	+8·80	21·38	6·13	+15·25	106·31	94·37	+11·94	4·26	Calicut.		
16	1	1	4	2				6	N 24° E	2·3		2·4	−4	92	·854	7·6	22	16·90	+5·10	27·68	10·32	+17·36	140·13	111·49	+28·64	4·91	Mangalore.		
6	13							11	N 20° W	5·5				84	·806	6·4	15	7·10	+7·90	9·38	3·63	+ 5·75	34·89	30·14	−1·25	1·33	Trivandrum.		
																				4·47	4·89	−0·42					XI.—South India.		
1			2	4	7	10	6		S 25° W	11·6	12·3			77	·810	2·6	0	2·20	−2·20	0	1·51	− 1·51	1·75	2·96	− 1·21	0	Pamban	MADRAS (SOUTH)	57
	2				1	2	14	11	N 72° W	7·4	7·1			61	·744	3·9	2	2·00	0	0·56	1·10	− 0·74	4·96	3·18	+ 0·98	0·36	Tinnevelly.		
9	7					2	1	11	N 37° W	2·0	2·0	3·1	−41	69	·810	4·0	5	6·10	−1·10	3·92	4·99	− 1·07	18·06	14·64	+ 4·02	2·75	Madura.		
14	6	3	3			1	3		N 8° E	5·3	3·6			65	·679	4·8	2	4·50	−2·50	0·56	2·57	− 1·67	8·90	8·92	− 0	0·46	Periyakulam.		

Table

Abstract of Observations taken at 8 A.M. at 230 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
34	Madras, (South Central).	Salem	940	28·957	− ·011	29·840	29·031	30th	28·912	13th	·119	78·7	91·8	+0·5	73·2	+1·3	82·5	+0·9	18·6	97·7	30th	70·5	28th & 30th.	27·2
		Coimbatore	1,348	28·550	+·009	29·849	28·611	30th	28·515	1st & 2nd	·096	76·4	88·8	−0·8	71·2	+0·5	80·0	0·2	17·6	94·4	30th	68·8	27th	25·6
35	Coorg	Mercara	3,781	26·220	+·009		26·271	30th	26·170	13th	·101	65·1	70·8	−1·4	61·9	0	66·4	−0·7	8·9	78·0	30th	59·1	28th, 29th & 30th.	18·9
36	Mysore	Chitaldroog	2,405	27·484	−·011	29·823	27·578	30th	27·422	7th	·156	71·9	82·8	−0·7	68·3	+0·8	75·6	+0·1	14·5	87·1	14th & 28th.	65·9	26th & 28th.	21·2
		Bangalore	3,021	26·915	−·004	29·847	26·988	30th	26·858	13th	·130	69·6	81·2	−0·7	65·7	+0·4	73·5	−0·2	15·5	85·3	30th	63·3	26th	22·0
		Hassan	3,091	26·853	−·006	29·855	26·923	30th	26·804	8th & 13th.	·119	71·3	79·7	−0·1	64·4	+0·2	72·1	+0·1	15·3	86·1	30th	59·1	29th	27·0
		Mysore	2,518	27·416	0	29·866	27·483	30th	27·353	13th	·130	71·7	83·6	−0·9	66·1	−0·3	74·9	−0·6	17·5	88·1	28th	62·0	29th	26·1
56	Madras, East Coast, South.	Negapatam	31	29·839	?	29·799	29·913	30th	29·799	13th	·114	83·5	93·3	+0·8	78·6	+2·1	85·9	+1·5	14·7	96·2	5th, 21st 23rd.	76·0	6th	20·2
		Cuddalore	12	29·850	+·006	29·791	29·949	30th	29·802	8th	·147	83·3	93·8	+1·9	77·7	+2·0	85·8	+2·0	16·1	98·7	3rd	71·7	19th	27·0
		Trichinopoly	255	29·628	+·007	29·816	29·701	30th	29·572	13th	·129	82·2	97·1	+1·6	77·3	+1·6	87·2	+1·6	19·8	101·6	4th	72·9	27th & 29th.	28·7
		Madras	22	29·825	−·002	29·778	29·930	30th	29·772	8th	·158	82·0	92·3	0·7	76·8	−0·2	84·6	·0·5	15·5	98·5	4th	72·0	18th	26·5
		Vellore	707	29·139		29·786	29·227	30th	29·080	13th	·147	80·7	91·3		77·1		84·2		14·2	94·4	28th	73·5	17th	20·9
55	Madras, East Coast, Central.	Nellore	71	29·764	+·013	29·769	29·873	30th	29·700	8th	·173	81·9	92·1	−2·5	77·4	−0·3	84·8	−1·4	14·7	98·3	27th	74·6	18th & 21st.	23·7
		Masulipatam	15	29·798	+·012	29·748	29·945	30th	29·710	1st	·235	82·1	89·1	−1·6	77·7	+0·3	83·4	−0·7	11·4	95·1	29th	74·6	1st & 3rd.	20·5
54	Madras, Central	Cuddapah	433	29·418	−·005	29·792	29·509	30th	29·348	2nd	·161	80·8	93·0	+0·5	75·8	0	84·4	+0·3	17·2	99·2	5th	71·1	24th	28·1
		Kurnool	958	28·896	+·012	29·802	29·007	30th	28·813	2nd	·194	78·3	89·3	+0·1	73·4	+0·3	81·4	+0·2	15·9	93·2	4th	71·4	3rd	21·8
		Bellary	1,475	28·383	−·002	29·808	28·492	30th	28·305	2nd	·187	78·0	91·3	+0·7	73·8	+1·1	82·6	+0·9	17·5	96·0	5th	68·7	30th	27·3
52	Madras, East Coast, North.	Cocanada	26	29·755	?	29·716	29·916	30th	29·649	1st	·267	82·0	89·2	0	78·3	+0·2	83·8	+0·1	10·9	94·6	27th, 29th & 30th.	75·0	6th	19·6
		Waltair (Vizag.)	226	29·545	+·004	29·712	29·712	30th	29·424	7th	·288	81·9	88·2	−1·1	77·5	−1·0	82·9	−1·1	10·7	92·9	28th	71·9	24th	21·0
		Gopalpur	21	29·728	−·003	29·689	29·909	30th	29·565	1st	·344	83·2	89·2	+0·9	78·3	0	83·8	+0·5	10·9	94·3	5th	74·1	29th	20·2
	XII.—Hill Stations.																							
48	Baluchistan	Pishin											87·4		48·1		67·8		39·3	96·4	3rd	35·0	22nd	61·4
		Quetta	5,502	24·606	+·003		24·701	30th	24·449	8th	·252	65·8	86·1	+0·7	50·0	+0·5	68·1	+0·6	36·1	94·1	3rd & 4th.	37·8	21st & 23rd.	56·3
		Kalat										66·6	86·2	+1·0	33·8	−5·7	60·0	−2·4	52·4	97·3	10th	19·9	23rd	77·4
		Chaman	4,311	25·602	−·046		25·775	30th	25·424	7th	·351	76·4	90·8	−0·8	62·6	+0·3	76·7	−0·3	28·2	101·2	4th	53·6	21st	47·6
30	Punjab and North-West Frontier Province.	Leh	11,503	19·742	+·012		19·841	17th	19·605	8th	·236	51·2	67·9	−2·4	39·8	−1·7	53·9	−2·1	28·1	76·1	8th	31·5	17th	44·6
		Srinagar	5,204	24·805	+·059		25·073	17th	24·747	7th	·326	59·5	80·7	+1·3	53·0	0	66·9	+0·7	27·7	91·9	8th	44·2	25th	47·7
		Sonemarg		21·362			21·947	17th	21·711	8th	·236	47·2	67·0		41·0		54·0		26·0	75·8	8th	30·6	17th	45·2
		Gulmarg		21·865			21·979	17th	21·739	8th	·240	53·8	63·4		40·7		52·1		22·7	72·1	4th	32·2	17th	39·9
		Skardu		22·826			22·993	19th	22·592	8th	·401	61·7	78·6		54·9		66·8		23·7	92·1	3rd & 7th.	42·6	17th	49·5
		Dras		20·813			20·908	18th	20·665	8th	·243	52·7	70·3		41·0		55·7		29·3	81·9	7th & 8th.	29·1	29th	52·8
		Gilgit	4,890	25·060			25·194	18th	24·710	8th	·484	71·5	88·8	+2·0	65·0	+0·5	77·0	+1·3	23·8	102·3	4th	53·1	17th	49·2
		Chitral		24·444			24·600	18th	24·275	8th	·325	65·6	90·7		57·2		74·0		33·5	100·7	7th	47·0	24th, 28th & 29th.	53·7
		Killa Drosh										70·0	89·0		65·4		77·2		23·6	99·6	6th	56·1	20th	43·5
		Para Chinar	6,000	24·433			24·527	17th	24·290	8th	·237	71·2	81·7		59·5		70·6		22·2	87·8	4th	50·4	17th	37·4
		Cherat		25·655	+·012		25·764	17th	24·481	8th	·283	72·5	85·4	−0·4	65·7	−0·2	75·6	−0·3	19·7	94·4	8th	55·5	16th	38·9
		Murree	6,333	23·832	+·002		23·917	30th	23·672	8th	·245	63·6	72·2	−1·6	55·9	−2·9	64·1	−2·3	16·3	79·3	4th	45·4	17th	33·9
		Poo											73·2		52·4		62·9		20·8	82·4	4th	44·7	23rd	37·7
		Simla	7,224	23·106	+·009		23·189	30th	22·982	8th	·207	58·9	65·6	−0·5	56·4	0	61·0	−0·3	9·2	71·4	2nd	51·3	17th	20·1
25	United Provinces	Chakrata	7,022	23·262	+·003		23·341	18th	23·146	7th	·195	60·1	66·7	−2·0	57·0	·0	61·9	−1·0	9·7	71·2	2nd	51·8	17th & 28th.	19·4
		Mussooree	6,705	23·530	+·008		23·620	30th	23·416	7th	·204	60·8	67·3	−1·3	57·6	+0·1	62·5	−0·6	9·7	72·8	2nd	50·5	17th	22·3
		Ranikhet	6,069	24·069	+·007		24·166	30th	23·950	7th	·216	64·1	72·2	−0·4	60·2	+0·2	66·2	−0·1	12·0	76·5	3rd	56·0	30th	20·5
		Muktesar		22·831			22·912	19th	22·729	8th	·183	60·1	68·0		55·5		61·8		12·5	71·8	4th	50·1	29th	21·7

I—*continued.*

in India, Burma, etc., in September, 1902—continued.

WIND DIRECTION. Number of Winds from									Wind resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.								Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th September 1902.	Normal rainfall for period, 1st May to 30th September.	Variation from normal of period, 1st May to 30th September 1902.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
12					1	8	8	1	S 68° W	2·4	2·2	3·7	−41	82	·811	7·2	10	8·70	+1·30	5·72	6·55	− 0·83	30·86	25·48	+ 5·38	1·51	Salem	Madras, (South Central).	34
					4	11	15		S 62° W	6·4	5·7	6·6	−14	82	·758	4·2	1	3·20	−2·20	0·29	1·32	− 1·03	12·53	7·60	+ 4·93	0·14	Coimbatore.		
4							23	3	N 85° W	5·1	4·7	7·9	−41	95	·600	8·6	20	18·00	+2·00	18·10	10·48	+ 7·62	96·76	110·32	−13·56	2·14	Mercara	Coorg.	35
						9	17	4	S 82° W	11·1	9·7			84	·625	7·6	5	6·90	−1·90	2·18	4·71	− 2·53	8·38	17·72	− 9·34	1·06	Chitaldroog.	Mysore.	36
				1		12	16	1	S 71° W	9·6	8·4	6·7	+25	88	·642	8·6	10	9·60	+0·40	8·41	6·23	+ 2·18	19·53	22·92	− 3·39	3·53	Bangalore.		
	1					4	16	9	N 79° W	4·1	3·6			82	·632	8·3	6	7·40	−1·40	3·59	4·68	− 1·09	20·19	22·08	− 1·89	1·34	Hassan.		
2						18	10		S 60° W	9·2	9·9			82	·633	7·7	6	7·70	−1·70	2·66	5·60	− 2·94	14·95	18·03	− 3·08	0·97	Mysore.		
3						19	7	1	S 59° W	5·2	4·6	5·2	−12	71	·820	4·4	6	5·60	+0·40	2·01	3·45	− 1·44	8·19	12·10	− 3·91	0·54	Negapatam	Madras, East Coast, South.	56
24					1	1	4		S 68° W	2·4	3·0			75	·865	8·3	5	6·60	−1·60	3·99	6·21	− 2·22	13·95	17·35	− 3·40	1·75	Cuddalore.		
14						6	10		S 73° W	4·4		7·1	−38	70	·774	4·8	5	5·90	−0·90	3·44	3·91	− 0·47	12·49	14·01	− 1·52	1·11	Trichinopoly		
					8	12	10		S 48° W	5·7		6·5	−12	78	·859	6·5	13	10·70	+2·30	4·65	5·01	− 0·36	12·71	17·48	− 4·77	1·07	Madras.		
3		1	1	3	1	6	2	13	N 67° W	3·3	3·3			71	·741	6·3	10	8·60	+1·40	11·14	6·14	+ 5·00	25·99	20·67	+ 5·32	2·95	Vellore.		
6				1	1	2	10	10	N 78° W	4·5				77	·836	7·3	11	5·60	+5·40	8·12	4·35	+ 3·77	18·31	12·81	+ 5·50	1·59	Nellore	Madras, East Coast, Central.	55
4					2	4	11	9	N 85° W	7·0	6·7	6·4	+ 5	86	·944	7·3	12	9·40	+2·60	5·92	5·89	+ 0·03	21·61	24·53	− 2·92	1·38	Masulipatam.		
	2					2	10	16	N 62° W					76	·797	7·5	11	8·30	+2·70	5·75	5·93	− 0·18	18·83	20·95	− 2·12	1·60	Cuddapah.	Madras, Central	54
					1	15	9	5	S 71° W					79	·760	7·0	11	9·20	+1·80	7·06	6·60	+ 0·46	14·20	21·80	− 7·60	1·45	Kurnool.		
3	1					1	17	8	N 75° W	9·2	9·8	9·3	+ 5	70	·663	5·9	8	6·90	+1·10	3·49	4·62	− 1·13	13·69	12·38	+ 1·31	1·70	Bellary.		
	1	1	1	1		10	8	8	S 89° W	6·4	5·4			83	·915	6·5	9	9·00	0	6·60	5·89	+ 0·71	22·19	22·92	− 0·73	1·70	Cocanada	Madras, East Coast, North	52
		2	2		1	23	2		S 43° W	9·4				81	·881	7·4	12	8·80	+3·20	7·40	8·01	− 0·61	20·89	24·16	− 3·27	1·78	Waltair (Vizag.).		
1	8				3	9	3	6	N 78° W	10·7	10·5	7·2	+46	84	·948	3·0	9	9·90	−0·90	5·03	7·14	− 2·11	28·67	31·09	− 2·42	1·19	Gopalpur.		
																											XII.—Hill Stations.		
																	0	0·10	−0·10	0	0·01	− 0·01	0	0·46	− 0·46	0	Pishin.	Baluchistan	
30									Calm	1·0	1·1	3·5	−69	47	·312	0·3	0	0·20	−0·20	0	0·13	− 0·13	0·65	2·32	− 1·67	0	Quetta.		
	7		2		20		1		S 4° E					36	·242		0	0·10	−0·10	0	0	0	1·46	1·65	− 0·19	0	Kalat.		
23					2	4		1	S 40° W	6·8	7·5			25	·229	0·2	0	0	0	0	0	0	0·02	0·28	− 0·26	0	Chaman.		
	1	10	4	3	2	5	5		N 84° E	2·1				47	·183	2·9	0	0·50	−0·50	0	0·20	− 0·20	1·22	1·53	− 0·31	0	Leh	Punjab and North-West Frontier Province.	30
11		3		7	6		1	2	S 32° E	2·2	2·4			88	·157	3·1	2	3·30	−1·30	0·70	1·11	− 0·41	11·13	10·41	+ 0·72	0·53	Srinagar.		
8	3	11	5	1			2		N 48° E	4·6	4·2			85	·284	3·0	6			1·70			16·75			0·41	Sonemarg		
20	1	1	3	2		2	1		S 68° E	3·7	4·3			80	·345	3·1	2			0·90			14·72			0·43	Gulmarg		
18		4	1		2	3	2		S 15° W	5·7	5·8			51	·268	2·7	0	0·40	−0·40	0·08	0·21	− 0·13	1·41	2·93	− 1·52	0·06	Skardu.		
21			2	2		2	2	1	S 19° W	7·3	7·6			59	·239	3·1	1	2·00	−1·00	0·26	0·87	− 0·61	4·41	5·46	− 1·05	0·12	Dras.		
28						1	1		S 63° W	3·9	3·5			40	·305	3·5	0	1·10	−1·10	0	0·25	− 0·25	2·21	2·35	− 0·14	0	Gilgit.		
30									Calm	3·9	3·8			56	·363	0·9	0			0			1·10			0	Chitral.		
30									Calm					46	·351	0·7	1			0·25			2·87			0·25	Killa Drosh.		
27				1	1	1			S	3·1				46	·355	2·0	3	5·30	−2·30	0·74	2·63	− 1·89	10·51	12·46	− 1·95	0·20	Para Chinar.		
	2	7		5	4	7	1	4	S 9° W	5·1	4·7			54	·429	2·1	4			2·26	1·80	+ 0·46	9·02	11·83	− 2·81	1·35	Cherat.		
19	2	3		2	1			2	N 21° E	5·	6·2	5·4	+15	68	·405	2·5	6	8·00	−2·00	4·79	5·62	− 0·83	30·32	37·58	− 7·26	1·61	Murree.		
19		1	2	5	2	1			S 45° E							4·9	5			0·79	0·45	+ 0·34	7·34	3·02	+ 4·32	0·26	Peo.		
11	8	4		1	1		1	4	N 1° W	3·8		1·7	+124	78	·395	5·5	9	8·70	+0·30	4·66	5·87	− 1·21	33·37	51·29	−17·92	0·86	Simla.		
15	10	2		1	2				N 14° E	7·8		4·7		88	·464	5·6	10	8·30	+1·70	6·25	6·10	+ 0·15	49·67	56·55	− 6·88	1·90	Chakrata	United Provinces	25
2	1	3	10	1	1	3	5	4	N 54° E					87	·468	6·0	18	10·30	+7·70	17·44	9·26	+ 8·18	81·17	83·10	− 1·93	3·91	Mussooree.		
11		4	2	1		3	4	5	N 50° W	2·0	2·3	1·9	+ 21	85	·500	5·1	12	8·20	+3·80	7·51	7·00	+ 0·51	36·77	43·94	− 7·17	1·46	Ranikhet.		
			4	14	4			8	S 45° E	6·1	5·6			87	·456	5·4	14			7·20			37·40			1·33	Muktesar.		

Table

Abstract of Observations taken at 8 A.M. at 230 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of barometer above sea-level in feet	Pressure, 8 A.M., in inches.								Temperature of Air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to, constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
13	Bengal	Yatung	10,480P									59·1	64·2	+0·1	55·8	-0·3	60·0	-0·1	8·4	70·2	1st	52·1	28th	18·1
		Darjeeling	7,376	23·001	-·025		23·071	30th	22·897	8th	·174	67·1	73·9		63·1		68·5		10·8	78·6	2 days	58·0	23rd	20·6
8	Assam Hill Tracts.	Shillong	4,920	25·111			25·194	10th	24·987	7th	·207	66·9	72·5		64·5		68·5		8·0	80·3	1st	60·5	29th	19·8
		Cherra Poonjee	4,309	25·663			25·739	16th	25·523	8th	·216	69·1	74·6	-0·7	65·5	+0·9	70·1	+0·1	9·1	78·1	14th & 15th.	60·4	25th & 30th.	17·7
	Central India	Mount Abu	3,945	25·964	-·019		26·100	30th	25·827	8th	·273	70·8	79·2	+2·0	67·5	+1·2	73·4	+1·6	11·7	84·1	20th & 21st,	60·2	28th	23·9
		Pachmarhi	3,528	26·356	-·007		26·503	30th	26·195	2nd	·308	63·2	71·2	-0·1	55·1	-0·7	63·2	-0·4	16·1	75·7	24th	47·7†	4th	28·0
	South India	Wellington	6,200	24·228	-·004		24·291	30th	24·179	13th	·112	57·4	63·8		52·8		56·9		11·0	67·2	5th	51·1	7th	16·1
		Kodai Kanal	7,688	22·822			22·878	30th	22·784	13th	·094	56·7	63·3		51·3		57·3		12·0	66·5	28th	45·2	29th	21·3
		Ootacamund	...	23·049			23·105	30th	23·003	15th	·102	55·6	57·2*		47·7*		52·5*		9·5	62·5	3rd	42·0	25th	20·5
		Dodabetta‖	...	21·992			22·063	30th	21·915	1st	·148													
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·895	?	29·833	29·937	29th	29·838	23rd	·099	81·1	92·1	+0·9	77·7	+1·1	84·9	+1·0	14·4	96·5	21th	75·0	28th	21·5
		Colombo	40	29·918	+·008	29·884	29·952	9th	29·880	24th	·072	81·3	86·7	+0·7	76·4	-0·6	81·6	+0·1	10·3	90·0	29th	72·0	4th	18·0
												66·0			53·4	-0·8						37·4	30th	
	Persia	Meshed	3,104																					
		Teheran	...	25·847§ (a) 24·791*			26·050	16th & 29th	25·530	8th	·470	75·7	91·2	+0·5	63·5	-1·1	77·4	-0·5	27·7	97·5	1st	51·3	30th	46·2
							24·980	18th	24·630	5th	·350													
		Ispahan	...	24·322*			24·450	17th	24·100	8th	·350	69·9*	90·7*	+0·4	53·8†	-1·4	72·3†	-0·5	36·9	98·5	1st	45·5	20th	54·0
		Bushire	14	29·719	-·010	29·692	29·846	28th	29·539	8th	·307	85·2	93·0	-1·3	78·8	-0·3	85·9	-0·8	14·2	101·0	2nd	71·1	30th	29·9
		Bahrein	30	29·706¶			29·848	28th	29·555	8th	·293													
		Jask(c)	...	29·710	-·039		29·849	25th	29·468	4th	·381	86·6	93·5	0	81·6	+0·7	87·6	+0·4	11·9	97·8	18th	73·7	25th	24·1
		Muscat	20	29·694	-·061	29·661	29·798	23rd	29·463	9th	·335	85·2	87·1	-0·2	83·4	0	85·3	-0·1	3·7	92·3	8th	80·1	19th	12·2
	Arabia	Baghdad	220	29·660*	-·015	29·854*	29·875	28th	29·528	5th	·347	78·7*	104·7	+2·7	72·6	+0·9	88·7	+1·8	32·1	110·4	5th	56·0	29th	54·4
		Busrah	...	29·778			29·933	28th	29·578	8th	·355		98·7		76·2		87·5		22·5	109·4	1st	66·2	29th	43·2
		Aden	94	29·703	-·034	29·728	29·813	25th	29·600	2nd	·213	85·5	93·2	-0·4	81·6	-0·6	87·4	-0·5	11·6	98·3	29th	78·8	29th	19·5
		Perim	201	29·623	+·014	29·754	29·691	25th & 28th	29·555	14th	·136	87·7	94·6	-0·2	84·5	+1·4	89·6	+0·6	10·1	99·9	2nd & 8th	80·4	19th	19·5
												61·4	88·6	+1·4	51·1	+0·1	69·9	+0·8	37·5	95·1	5 days	41·4	25th	53·7
	Afghanistan	Kabul	...	...			25·780	24th & 26th.	25·410	7th	·370	66·8	54·0	+ 2·5	56·2	+1·3	71·1	+1·9	25·8	97·1	2nd	49·1‡	30th	48·0
	Central Asia	Kashgar††	4,255	25·635			29·978	6th	29·882	13th	·096	82·2	85·9	+0·9	77·3	0	81·6	+0·5	8·6	89·6	5th	73·7	17th	15·9
		Amini Devi	13	29·932	+·005	29·873	29·986	16th	29·920	13th	·066	81·9	86·2	+0·9						88·0	2nd			
	Arabian Sea Islands.	Minicoy	7	29·954		29·886	30·059	10th	29·969	26th	·182	76·8	85·2	+1·2	74·8	+1·3	79·0	+1·3	8·4	85·8	28th	72·9	9th	12·9
	Africa	Zanzibar	73	30·059	-·006	30·059	30·151	10th	29·969	26th	·182	76·8‡‡	86·7‡‡		69·7‡‡		78·2‡‡		17·0	89·9	13th	67·4	11th	22·5
		Do, Dunga	...									80·6	88·5		73·8		81·2		14·7	91·0	3rd & 4th	72·0	10th & 26th	19·0
	Straits Settlements.	Penang‖‖	20	29·913		29·858	29·952	11th	29·824	30th	·128	83·2	87·6		73·1		80·4		14·5	90·2	6th	70·0	1st	22·2
		Singapur‖‖	10	29·949		29·880	30·007	29th	29·883	24th	·124													

NOTE.—When a query is inserted against any reading or in the returns for any variation station, the (c) Observations of days.

* Mean of 29 days. † Mean of 28 days. ‡ Mean of 25 days. ¶ Mean of 20 days. § Aneroid uncorrected. ‖ 1 P.M. Observations.

I—*concluded.*

in India, Burma, etc., in September, 1902—concluded.

WIND DIRECTION. Number of winds from									Wind Resultant.	Wind Velocity.				Hygrometry, S.A.M.		Mean cloud amount.	Rainfall.									Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th September 1902.	Normal rainfall for period, 1st May to 30th September.	Variation from normal of period, 1st May to 30th September.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																		14·13			6·68						Yatung	Bengal.	13
12		3	2	5	3		2	3	S 63° E	3·8	3·6	3·0	+20	96	·479	8·1¶	23	17·71	+ 5·29	46·84	18·95	+27·89	138·50	111·83	+26·67	12·20	Darjeeling.		
14	1	1		8	2	4			S 22° E	2·1	2·4			86	·570	6·7	19	17·50	+ 1·50	10·99			68·47			2·52	Shillong	Assam Hill Tracts.	8
2		3	3	2	4	12	4		S 27° W	4·3	4·9			93	·615	8·1	23	18·80	+ 4·20	15·35			379·18			8 87	Cherra Poonjee.		
3	3	2		2	3	13	1	3	S 53° W	7·9	8·0	7·3	+10	77	·541	5·2	14	8·00	+ 6·00	10·41	9·12	+1·32	29·41	59·76	−30·35	2·55	Mount Abu	Central India.	
13	3					1	5	8	N 55° W	6·6	6·8	5·6	+21	85	·648	6·9	16	13·80	+ 2·20	9·19	14·09	−4·50	45·34	71·30	−25·96	2·56	Pachmarhi.		
11	3		1	2	2	9	1	1	S 50° W	3·6		3·5	+3	74	·431	6·1	14	10·10	+ 3·90	7·04	5·40	+1·64	22·19	20·28	+1·91	2·17	Wellington	South India.	
	1		1	1			7	20	N 54° W	14·5				78	·369	6·6	9	12·40	− 3·40	3·07	6·70	−3·63	18·43	27·06	−8·63	0·98	Kodai Kanal		
12	1					3	8	6	N 78° W	4·2	3·9			85	·390	7·2	11	10·10	+ 0·90	3·72	4·44	−0·72	33·44	27·19	−6·25	0·83	Ootacamund		
														88	·391	8·4	17			9·33			23·21(*b*)			1·50	Dodabetta		
																											XIII.—Extra India.		
						30			S 45° W					86	·923	2·7	2			2·04	4·56	−2·52	6·71	15·14	−8·43	1·84	Trincomalee	Ceylon.	
		1		3	8	16	2		S 27° W	8·3		8·7	−5	85	·905	6·3	14			8·27	4·82	+3·15	37·63	32·90	+4·73	1·43	Colombo.		
														52	·338	0·6	0			0	0·02	−0·02	0·06	1·01	−0·95	0	Meshed	Persia.	
13		5	2	2	3	5			S 37° E	2·8	3·6			35	·509	0·6	0			0	0·14	−0·14	0·36	0·97	−0·61	0	Teheran		
28							1		W	3·2	4·2			51*	·377*	0·2*	0			0	0	0	0·01	0·17	−0·13	0	Ispahan¶¶		
3	10	8	3	2				4	N 22° E	7·4	8·8	7·7	+14	59	·718	0·2	0			0	0	0	0	0	0	0	Bushire.		
	4		3		1	5	11	4	N 82° W								0			0			0			0	Bahrein.		
3		1	19	4				2	S 88° E	12·0	13·9			70	·885	1·2	0			0	0	0	0	0·13	−0·13	0	Jask.		
1	1	1		23				4	S 49° E	2·9	3·0			80	·959	0·3	0			0	0	0	0	0·40	−0·40	0	Muscat.		
20	2						3	4	N 50° W	2·0	2·6			36	·365	0·3	0			0	0	0	0	0·33	−0·33	0	Baghdad.	Arabia.	
																				0			0			0	Bussrah.		
	1	4	8	2		7	3	1	S 33° E	12·8	10·4	8·5	+22	76	·940	6·6	0			0	0·13	−0·13	0	0·50	−0·50	0	Aden.		
	1	1	6	7		6	2	7	S 18° E	15·3	13·8			79	1·041	1·6	0			0	0·01	−0·01	1·35	0·84	+0·51	0	Perim.		
		1	4	8	6	11			S 9° E					41	·234	0·4	0			0	0·03	−0·03	0·67	1·16	−0·49	0	Kabul	Afghanistan.	
26									Calm	1·3‡	1·1‡			50	·332	2·2	1			1·00	0·43	+0·57	1·00	3·01	−2·01	1·00	Kashgar	Central Asia.	
	6	1					12	11	N 52° W					80	·883	7·0	12			13·77	5·54	+8·23	56·66	32·19	+24·74	2·55	Amini Devi.	Arabian Sea Islands.	
	3	1				7	8	11	N 71° W	10·0	10·7			80	·869	4·5	9			8·44	5·97	+2·47	50·18	34·12	+16·06	2·08	Minicoy.		
			2	10	13	5			S 14° E	6·4	6·0			87	·800	7·1	5			2·64	2·03	+0·61	21·27	18·36	+2·91	0·90	Zanzibar	Africa.	
														‡‡	‡‡	‡‡													
18				2	2	3			S 9° W	4·7§§	4·6§§			86	·792	6·7	8			2 13			17·73			0·64	Do. Dunga		
5	8	8	1	5	2			1	N 47° E							1·7	16			11·55			33·74			2·28	Penang	Straits Settlements.	
1	1		3	13	4	4	2		S 21° E							6·1	10			3·47			19·49			0·86	Singapur		

data for that station are not utilized in calculating the provincial variations.

†† Observation of 2 days. ‡‡ Mean of 27 days. §§ Mean of 22 days. ‖‖ 9 hours observation ¶¶ Wind Observation of 29 days. (*a*) Mountain barometer uncorrected.

(*b*) Total rainfall from 1st July 1902.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63 Stations in India, Burma, etc., in September, 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M.

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity, 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Bay Islands.	Port Blair	61	29·855	29·764	·091	29·812	+·032	29·804	84·0	76·9	7·1	87·7	73·6	14·1	81·6	81·1	79·3	−0·2	74·9	78·9	77·9	77·2
	Rangoon	41	·831	·720	·111	·777	−·004	·755	85·6	76·3	9·3	90·2	73·8	16·4	82·0	82·4	79·4	+0·7	75·2	78·3	78·1	77·2
	Diamond Island	41	·837	·740	·097	·791	+·008	·766	84·4	76·9	7·5	87·4	73·2	14·2	82·1	81·4	79·5	+0·7	74·6	78·3	77·6	76·8
	Cocos Island	119										Not	received.									
	Akyab	20	·821	·713	·108	·771	+·010	·734	86·5	78·4	8·1	90·1	75·7	14·4	83·0	84·0	81·6	+0·2		80·6	80·5	
Bengal and Orissa.	Chittagong	87	·721	·608	·113	·669	−·008	·703	87·3	76·7	10·6	90·6	74·8	15·8	84·3	84·2	81·0	+0·4	76·0	79·6	79·4	78·3
	Calcutta (Alipore)	21	·741	·639	·102	·692	+·007	·658	83·5	78·9	10·6	92·2	75·2	17·0	85·9	85·9	83·8	+1·3	77·6	80·5	80·1	79·4
	Saugor Island	25	·731	·629	·102	·682	+·002	·651	90·3	80·6	9·7	93·1	77·1	16·0	86·7‡	87·7	84·4	+1·8	78·2	81·9	81·7	80·6
	False Point	21	·739	·646	·093	·695	−·001	·657	88·6	79·0	9·6	92·5	75·1	17·4	86·5	86·4	82·9	+1·1	77·7	80·5	80·2	79·5
Ganges to Plain and Chota Nagpur.	Hazaribagh	2,007	27·719	27·657	·092	27·707	−·003	·644	85·6§	73·8§	11·8	88·7	71·2	17·5	80·5§	81·1§	78·3§	+1·3	72·2§	75·1§	75·1§	74·1
	Darbhanga	166	29·185	29·470	·115	29·533	−·008	·652	87·5	78·5	9·0	92·5	74·3	18·2	83·7	85·7	82·1	−0·7	76·6	79·6	80·4	78·9
	Allahabad	309	·141	·326	·115	·387	+·011	·647	90·0	77·2	12·8	94·5	68·6	25·9	85·6	87·4	82·4	−0·8	75·8	79·9	80·2	78·6
Upper Sub-Himalayas.	Dehra Dun	2,233	27·540	27·455	·085	27·490	−·012	·660	84·6	69·9	14·7	92·8?	63·6	29·2	78·2	80·3	75·9	−1·0	67·8	72·4	73·3	71·2
	Roorkee	899	28·842	28·737	·105	28·783	−·011	·638	90·4	73·7	16·7	95·1	64·6	30·5	83·9	87·3	81·0	−0·8	72·8	76·6	76·4	75·3
	Meerut	738	·980	·885	·095	·924	−·016	·619	91·6	74·8	16·8	95·6	65·3	30·3	84·1	88·7	82·4	−0·4	72·3	75·9	77·2	75·1
	Lahore	702	29·020	·921	·099	·964	−·003	·621	96·8	74·6	22·2	103·4	65·1	38·3	88·3	91·8	85·0	+1·1	71·7	77·1	78·3	75·7
	Ludhiana	812	28·922	·824	·098	·867	−·003	·638	91·7	75·8	15·9	95·1	69·1	26·0	84·5	89·6	83·0	−0·5	72·6	75·7	76·5	74·9
N.W. Frontier Provinces, Indus Valley and N.W. Rajputana.	Peshawar	1,110	·632	·516	·116	·568	−·014	·636	97·3	70·4	26·9	104·5	62·0	42·5	88·4	94·2	82·9	+0·9	64·5	73·3	73·3	70·4
	Jacobabad	186	29·511	29·406	·105	29·452	−·012	·591	104·7	76·4	28·3	112·1	64·6	47·5	93·1	101·4	89·5	+0·8	?	?	?	?
	Kurrachee	30	·740	·655	·085	·699	−·020	·679	91·3	79·3	12·0	98·4	75·0	23·4	86·6	87·1	84·1	+2·5	75·6	78·9	80·1	78·3
E. Rajputana, C. India and Gujarat.	Jaipur	1,431	28·341	28·242	·099	28·287	−·006	·656	93·3	74·1	19·2	101·3	66·1	35·2	85·6	89·6	82·2	+0·3	71·1	75·6	75·7	74·1
	Udaipur	1,925	27·868	27·783	·085	27·826		·688	85·9	70·8	15·1	90·3	61·3	29·0	81·4	81·9	77·4		69·5	74·6	74·4	72·8
	Deesa	466	29·312	29·200	·112	29·255	−·026	·669	92·6	76·3	16·3	98·3	69·6	28·7	85·2	90·1	83·3	+1·4	73·3	77·3	76·3	75·6
	Jamnagar	61	·748	·648	·100	·698		·705	89·7	75·5	14·2	93·2	68·4	24·8	84·8	87·5	82·0		72·8	77·4	77·8	76·0
Deccan.	Belgaum	2,539	27·338	27·247	·091	27·294	−·006	·753	78·7	66·3	12·4	83·4	58·9	24·5	73·9	75·0	71·2	+0·9	66·2	70·4†	70·2	69·0
	Sholapur	1,590	28·245	28·113	·132	28·190	−·015	·709	89·3	72·1	17·2	94·2	69·4	24·8	80·8	86·2	79·2	+1·6	69·5	72·5	73·1	71·7
	Akola	930	·873	·756	·117	·815	+·004	·692	89·1	73·4	15·7	92·6	67·8	21·8	83·3	86·1	80·5	+0·7	71·8	75·4	75·9	74·4
	Buldana	2,132	27·690	27·586	·104	27·639	−·004	·698	83·1	69·6	13·5	86·4	65·0	21·4	77·4	80·8	75·8	+0·3	67·7	71·4	72·2	70·5
	Khandwa	1,041	28·754	28·629	·115	28·698	0	·691	87·3	74·0	13·3	92·7	68·6	24·1	81·7	85·7	79·5	+0·5	71·6	75·0	76·1	74·2
	Nagpur	1,025	·760	·650	·110	·706	+·028	·679	88·9	74·4	14·5	92·1	68·3	23·8	82·3	84·6	80·6	+0·3	72·5	76·0	75·8	74·8
	Do. (Sanitary Commr.'s Office).	1,013	·771	·660	·111	·717		·680	88·9	74·5	14·4	94·3	68·6	25·7	83·3	85·2	80·8		72·7	77·3	77·6	75·9
	Hyderabad (Deccan).	1,690	·141	·023	·118	·087	+·006	·706	86·5	72·4	14·1	90·9	69·5	21·4	80·1	84·4	78·9	+1·3		73·6‡	75·3†	
West Coast.	Bombay	37	29·823	29·732	·091	29·775	−·011	·751	84·6	76·9	7·7	87·1	73·3	13·8	80·8	82·4	80·2	+0·5	75·3	77·7	77·8	76·9
	Karwar	44	·871	·780	·091	·822	+·002	·798	83·2	74·3	8·9	85·1	70·9	14·2	80·5	81·1	78·2	+0·5	72·6	76·0	76·2	74·9

† Mean of 28 days. ‡ Mean of 29 days. § Mean of 28 days.

II.

at 63 Stations in India, Burma, etc., for September, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·840	·956	·921	·906	+·013	91	88	86	88	+ 1	6·9	7·7	7·3	0							25	32	3	S 73° W	S 52° W	90	74	336*	228	26·23	2·90	Port Blair	Burma Coast and Bay Islands.
·868	·923	·912	·901	+·008	95	84	82	87	− 2	7·9	7·3	7·6	−0·6	1		2	12	16	13	8	7	1	S 22° E	S 23° W	50	49	34*	89	15·35	4·18	Rangoon	
·817	·921	·898	·879	+·008	89	84	84	86	− 1	6·5	7·4	7·0	−0·5	2			1	5	5	32	8	7	S 50° W	S 45° W	68	55	232*	182	21·84	5·19	Diamond Island	
																															Cocos Island	
	1·019	·998				90	85			7·4	6·5	7·0	−0·2		1	2	7	17	19	14			S 15° E	S 8° E	67	42	85*	74	24·23	3·25	Akyab	
·890	·948	·942	·927	+·011	97	80	80	86	0	7·6	7·6	7·6	+0·7		3	2	6	13	19	7	3	7	S 9° E	S 22° E	40	37	148*	102	9·77	1·98	Chittagong	Bengal and Orissa.
·931	973	·950	·951	+·008	94	79	77	83	− 3	7·8	7·8	7·8	+0·5			4	12	12	16	10	1	5	S 25° E	S 23° E	46	42	89	98	6·98	1·21	Calcutta (Alipore).	
·938	1·032‡	1·004	·991	+·015	90	81‡	77	83	− 3	7·4	7·5	7·5	+0·4		1	4	3	15	23	7	3	4	S 10° E	S 2° W	53	49	278	257	12·43	3·30	Saugor Island.	
·924	·963	·948	·948	+·019	94	76	76	82	− 2	7·2	7·4	7·3	+0·3		8	2	3	5	21	11	7	3	S 23° W	S 20° W	33	37	178*	205	7·67	1·86	False Point	
·773§	·806§	·799§	·793	+·039	92‖	78§	76§	82	− 2	8·6	8·6	8·6	+0·6	2	5	10	3	4	10	13	5	3	S 58° W	S 52° E	13	10	158*	178	12·79	1·92	Hazaribagh	Gangetic Plain and Central Provs.
·891	·959	·909	·940	+·005	91	83	79	84	+ 2	6·5	5·7	6·1	+0·8	27			15	13	1	1	2	1	S 64° E	S 81° E	38	49	58	96	17·34	5·46	Darbhanga	
·879	·955	·940	·922	+·037	94	79	73	82	+ 3	6·6	7·3	7·0	+1·7	4	7	11	8	4	1	3	13	9	N 11° W	N 8° W	8	13	115*	128	9·23	1·63	Allahabad	
·659	·732	·727	·709	+·011	89	76	72	79	+ 1	5·5†	6·1	5·8	+1·0	10	1		4	1	13	8	11	12	S 64° W	N 75° W	38	20	18	25	9·85	2·55	Dehra Dun	Upper Sub-Himalayas.
·799	·820	·770	·796	+·028	96	71	60	76	+ 4	4·4	3·8	4·1	+0·3	21			1	17	3			18	S 8° E	S 14° W	3	7	37	48	4·47	1·57	Roorkee	
·776	·792	·792	·787	+·025	88	68	59	72	+ 2	4·2	4·0	4·1	+0·4	5	1		14	7	3	6	15	9	S 55° W	N 49° W	13	19	26*	46	2·96	2·10	Meerut	
·753	·780	·752	·765	+·051	86	59	47	64	+ 7	2·0	1·4	1·7	+0·2	15	10	3	5	5	2	1	14	5	N 39° W	N 55° E	20	7	48	50	2·45	1·79	Lahore	
·770	·786	·751	·769	+·014	85	66	55	69	+ 3	2·9	2·8	2·9	−0·1	9		6		16			17	12	N 82° W	N 44° W	17	14	40*	31	7·81	4·36	Ludhiana	
·553	·649	·574	·592	0	72	48	36	52	− 2	1·0	2·6	1·8	+0·1	9	12	20	6		2	1	5	5	N 22° E	N 39° E	48	51	47*	73	0·57	0·50	Peshawar	N.W. Frontier Provinces, Indus Valley and N.W. Rajputana.
?	?	?	?	?	?	?	?	?	?	1·3	1·0	1·2	+0·6	33	3	4	1	7	5	5		2	S 31° E	S 32° E	12	45	37*	72	0·50	0·34	Jacobabad	
·847	·888	·935	·890	+·049	85	70	73	76	− 1	2·5	2·1	2·3	−1·5				1		2	28	27	2	S 67° W	S 67° W	86	87	294*	356	3·12	1·92	Kurrachee	
·733	·765	·717	·738	+·055	86	62	53	67	+ 3	4·6	5·5	5·1	+1·1		5	10	6	1	1	10	15	12	N 55° W	N 39° W	35	43	81	108	8·15	2·95	Jaipur	E. Rajputana, C. India and Gujarat.
·710	·784	·767	·754		93	73	71	79		4·7	5·6	5·3		24	1	1	1	2	3	9	15	4	S 74° W		37		52*		12·18	2·93	Udaipur	
·790	·824	·727	·784	+·061	86	69	53	69	+ 3	4·2	4·3	4·3	−0·5		3	3	3	2	5	16	21	5	S 73° W	S 69° W	53	53	174‡	200	6·84	3·00	Deesa	
·779	·842	·824	·815		88	71	64	74		5·4	4·7	5·1			1	1			2	18	25	6	S 78° W		70		347*		3·94	1·77	Jamnagar¶	
·645	·706†	·679	·679	+·038	99	84†	79	88	+ 3	8·2	7·5	7·9	+0·4		1	1			4	30	20	4	S 64° W	S 78° W	80	75	402	385	3·86	1·18	Belgaum	Deccan.
·693	697	·653	·681	+·019	88	67	54	70	0	7·1	8·2	7·7	−0·3	4	4	1	1		2	9	14	25	N 70° W	N 69° W	70	67	304*	245	13·82	5·69	Sholapur	
·762	·779	·760	·767	+·028	92	68	62	74	0	6·8	7·0	6·9	+0·3	10	5	1		3		6	10	25	N 60° W	N 59° W	56	68	116*	155	4·40	1·01	Akola	
·659	·700	·688	·682	+·002	91	75	66	77	− 1	7·7	7·3	7·5	+0·9	2	6		1	1	2	4	19	21	N 62° W	N 47° W	68	68	167*	200	1·91	0·58	Buldana	
·754	·782	·781	·772	+·031	89	73	65	76	+ 1	6·7	7·1	6·9	+1·4	5	6	1	1	2	1	4	22	18	N 67° W	N 66° W	62	67	140	154	5·07	1·65	Khandwa	
·778	·819	·784	·794	+·027	91	74	67	77	+ 2	6·9	6·9	6·9	−0·4	8	10	5	1		2	9	7	18	N 50° W	N 52° W	47	37	131	147	4·09	1·49	Nagpur	
·785	·866	·857	·836		91	76	71	79		6·7	7·0	6·9		23		5		12		12		8	S 16° W		13		30*		6·07	1·36	Do, (Sanitary Commr.'s Office)	
	752‡	·773†				73‡	66†			6·2	7·0	6·6	+0·3	22		3	1				27	7	N 76° W	N 71° W	50	61	124*	150	10·80	2·18	Hyderabad (Deccan).	
·856	·813	·892	·887	+·022	93	87	81	87	+ 2	7·3	6·4	6·9	−0·5		2	1	4	3	2	9	28	11	W	N 84° W	59	52	220	267	27·63	5·97	Bombay	West Coast.
·781	·838	·840	·820	+·003	92	81	80	84	− 2	6·2	6·1	6·2	+0·5	6	2					8	32	12	S 84° W	N 80° W	77	78	81	58	24·71	2·96	Karwar	

‡ Mean of 25 days. Wind variable 7. * Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63 Stations

Meteorological Province	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of air. Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	28·942	28·821	·121	28·894			94·9	72·2	22·7	99·1	68·5	30·6	87·2	87·1	81·8		68·7	73·8	74·1	72·1
	Salem	940	·959	·825	·134	·905	−·012	29·772	91·9	73·1	18·8	97·7	70·3	27·4	83·6	89·1	80·4	+1·0	71·9	76·0	77·4	75·1
	Chitaldroog	2,405	27·488	27·378	·110	27·442	+·002	·756	83·2	63·3	14·9	89·1	65·9	23·2	76·6	80·8	75·2	+0·7	66·4	69·7	71·0	69·0
	Bangalore	3,021	26·920	26·811	·109	26·877	+·002	·775	81·5	65·7	15·8	86·6	63·3	23·3	74·5	79·0	73·0	+0·7	64·9	69·1	70·6	68·2
	Hassan	3,091	·861	·775	·086	·829	+·005	·801	80·0	64·4	15·6	86·1	59·1	27·0	75·2	76·1	71·3	+0·6	63·6	68·6	68·8	67·0
	Mysore	2,518	27·419	27·315	·104	27·367	+·012	·793	83·9	66·1	17·8	90·0	61·9	28·1	77·1	78·6	73·7	−0·9	65·4	69·3	69·6	68·1
	Madras	22	29·831	29·711	·127	29·779	+·008	·729	92·3	76·7	15·6	98·7	72·1	26·6	86·4	87·6	83·3	−0·5		78·0	79·5	78·2
	Bellary	1,475	28·394	28·260	·134	28·336	−·004	·739	91·4	73·8	17·6	96·0	68·7	27·3	82·3	88·0	81·1	+1·0	69·6	72·0	73·5	71·7
	Waltair	226	29·553	29·447	·106	29·500		·665	88·3	77·5	10·8	92·9	71·9	21·0	85·0	85·3	82·2		72·1	77·9	78·1	76·0
Hill Station, Baluchistan.	Quetta	5,502	24·610	24·514	·096	24·554	−·002		85·9	50·0	35·9	94·3	37·8	56·5	76·9	83·0	67·3	+0·7	45·4	55·5	57·4	52·8
Hill Stations, Northern India.	Leh	11,503	19·745	19·622	·123	19·692	+·006		68·1	40·0	28·1	75·9	31·5	44·4	58·9	65·8	54·0	+0·2	36·4	45·1	48·4	43·3
	Srinagar	5,204	24·904	24·806	·098	24·847	+·060		80·8	53·0	27·8	92·0	44·2	47·8	68·1	78·5	66·4	+0·7	51·0	64·7	73·0	62·9
	Kailang	10,087	20·956	20·867	·089	20·920	P		70·4	42·1	28·3	79·3	35·0	44·3	59·9	63·8	53·7	0	40·5	49·8	49·9	46·7
	Simla (Ridge)	7,224	23·125	23·067‡	·058	23·088‡	+·008		65·6	56·3	9·3	71·4	51·3	20·1	61·4	62·5‡	60·0‡	−1·5	53·3	56·9	58·7‡	56·2
	Chakrata	7,022	·278	·221	·057	·242	−·004		66·8	56·9	9·9	71·2	51·8	19·4	62·9	63·6	60·8	−0·9	55·9	59·8	61·0	58·9
	Ranikhet	6,069	24·083	24·007	·076	24·031	+·001		72·0	60·3	11·7	76·0	56·0	20·0	67·4	68·8	65·2	−0·3	58·5	62·9	63·9	61·8
	Muktesar	7,600	22·850	22·783	·067	22·817			67·8	55·5	12·3	71·8	50·1	21·7	63·2	63·7	60·6		54·0	59·7	60·8	58·2
	Katmandu	4,388	25·618	25·549	·069	25·587	P		80·5	66·1	14·4	85·6	60·4	25·2	74·8	76·2	72·2	−1·4	65·0	69·2	70·5	68·2
	Darjeeling	7,376	23·011	22·956	·055	22·987	−·005		64·0	55·8	8·2	68·8	52·1	16·7	61·1	62·4	59·5	+0·8	55·6	59·6	60·5	58·6
Hill Stations, Central India.	Mount Abu	3,945	25·978	25·906	·072	25·941	−·017		74·7	65·5	9·2	78·1	60·4	17·7	71·3	72·6	69·5	+0·4	61·4	65·6	67·2	64·7
	Pachmarhi	3,528	26·373	26·285	·088	26·330	−·002		79·4	67·4	12·0	84·1	60·4	23·7	73·2	74·7	71·8	+1·3	66·1	69·0	69·8	68·3
	Chikalda	3,642	·254	·165	·089	·210	−·006		75·9	66·0	9·9	81·6	63·0	18·6	71·0	73·7	69·9	+1·0	64·5	68·5	70·5	67·9
Hill Stations, South India.	Kodaikanal	7,688	22·834	22·766	·068	22·796			61·0	52·8	11·2	67·2	51·1	16·1	60·9	59·3	56·9		49·3	56·1	56·9	53·7
	Ootacamund		23·061	·993	·068	23·027			63·2	51·2	12·0	66·8	45·2	21·6	60·4	59·4	56·3		49·9	55·6	56·4	54·0
Extra India.	Aden	94	29·713	29·576	·137	29·638	−·040	·661	93·1	81·6	11·5	98·3	78·6	19·7	89·2	90·1	86·8	−0·3	74·4	81·0	78·7	78·0
	Perim	201	·630	·504	·126	·560	+·006	·690	94·4	84·5	9·9	99·9	80·4	19·5	90·6	91·4	88·7	+0·1	81·1	82·7	83·1	82·3
	Minicoy	7	·971	·896	·075	·936		·868	86·2			88·0			83·5	83·4				77·9	77·7	
	Zanzibar	73	30·077	·959	·118	30·018	−·001	30·018	83·3	74·8	8·5	85·8	72·9	12·9	78·3	82·3	78·8	+1·3	71·6	74·4	74·6	73·5
	Port Victoria (Seychelles)	15	·016	·928	·088	29·972	−·008	29·911	82·7	74·5	8·2	84·3	71·5	12·8	81·2	82·0	78·4	−0·6	72·8	75·5	75·7	74·7
	Mauritius (Pamplemousses)	181				·995	−·022	30·125				81·8	55·4	26·4			70·7	+1·1				

‡ Mean of 29 days.

§ Mean of 27 days.

II—*concluded.*

in India, Burma, etc., for September, 1902—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·657	·657	·670	·660		83	51	54	61		4·9	8·8	6·9		6	11	8	8	6	11	3	5	1	E		17		85*		0·90	0·46	Periyakulam†	South India.
·768	·799	·792	·786	+·040	94	69	58	74	+ 2	6·0	7·8	6·9	+1·3	19		1	2		2	18	16	1	S 63° W	S 63° W	48	69	50*	82	5·72	1·51	Salem	
·630	·641	·637	·636	+·044	90	70	61	74	+ 5	7·6	7·2	7·4	−0·3		1					15	31	13	S 89° W	N 87° W	85	78	229*	228	2·18	1·06	Chitaldroog	
·609	·649	·654	·637	+·034	96	76	66	79	+ 3	8·0	7·4	7·7	+1·4	1	1	1			3	17	29	8	S 81° W	S 85° W	78	84	197*	167	8·41	3·53	Bangalore	
·581	·624	·619	·608	+·030	95	71	70	79	+ 3	8·0	8·1	8·1	+0·2	1	1					8	31	19	N 80° W	N 79° W	85	79	85*	91	3·59	1·34	Hassan	
·619	·622	·616	·619	+·024	96	67	65	76	+ 5	9·1	8·8	9·0	+1·4		1	2	1		1	19	30	6	S 80° W	N 87° W	77	68	234*	266	2·66	0·97	Mysore	
	·847	·898	·900	+·077		68	70	79	+ 6	5·7	6·5	6·1	0		1		1	8	6	15	22	6	S 61° W	S 36° W	59	52	131	149	4·65	1·07	Madras	
·677	·661	·647	·662	+·008	81	60	50	64	0	6·2	6·5	6·4	−1·1	1	1					9	26	23	N 77° W	N 78° W	84	75	228*	223	3·49	1·70	Bellary	
·719	·862	·871	·817		76	72	72	73		7·2	7·3	7·3				2	8	3	9	37	1		S 23° W		65		104		7·40	1·78	Waltair	
·274	·227	·214	·238	−·014	70	23	18	37	− 2	0·3	0·9	0·6	+0·1	38	6	1	1				9	5	N 46° W	N 60° W	25	42	23*	62	0	0	Quetta	Hill Station, Baluchistan.
·191	·188	·197	·192	+·020	75	36	30	47	+ 6	2·6	4·4	3·5	−0·6		2	2		2	12	22	18	2	S 53° W	S 58° W	67	39	49	42	0	0	Leh	Hill Stations, Northern India.
·363	·581	·784	·576	+·083	87	84	81	84	+ 6	2·5	3·5	3·0	−0·6	30	2	5		4	2		5	12	N 38° W	N 24° W	20	12	54*	76	0·70	0·53	Srinagar	
·242	·276	·245	·254	+·009	89	53	42	61	+ 2	4·7	5·8	5·3	+0·5		1		1	3	20	14	14	7	S 45° W	S 57° W	60	61	29	38	1·35	0·85	Kailang	
·381	·422	·462‡	·421	−·020	83	77	81‡	80	+ 2	5·9	7·7	6·8	+1·0	15	15	2	1	7	5	1	1	13	N 14° W	N 13° E	25	30	90	99	4·66	0·86	Simla (Ridge)	
·438	·489	·515	·481	+·009	94	84	86	88	+ 4	6·8	7·4	7·1	+0·8	8	4		1	14	31	1		1	S 14° E	S 73° W	63	37	188	128	6·25	1·90	Chakrata	
·478	·529	·545	·517	+·009	90	78	77	82	+ 1	7·2	7·3	7·3	+1·3	13	5	1	1	1	1	18	11	9	S 85° W	S 55° W	47	37	56*	52	7·51	1·46	Ranikhet	
·409	·479	·507	·465		91	82	85	86		6·0	7·2	6·6			3	3	2	26	4	6	2	14	S 23° E		22		121*		7·20	1·33	Muktesar	
·610	·653	·686	·650	+·019	94	76	76	82	+ 3	6·8	7·2	7·0	+0·7	13	1	4	5	3		11	16	7	S 87° W	N 80° W	32	14	9	17	11·26	1·40	Katmandu	
·442	·496	·510	·483	+·005	98	92	90	93	− 1	7·4‡	7·5§	7·5	−0·8	5	1	5	1	4	8	21	8	7	S 52° W	S 58° E	43	6	85*	85	46·84	12·20	Darjeeling	
·510	·571	·615	·565	+·018	80	75	76	77	0	6·0	5·7	5·9	+0·5	1	8	7		1	8	16	15	4	S 79° W	S 73° W	40	34	193*	153	10·44	2·55	Mount Abu	Hill Stations, Central India.
·631	·659	·672	·654	+·030	93	81	79	84	+ 2	7·2	7·0	7·1	−0·1	26	2	4	1	1	1	1	10	14	N 53° W	N 59° W	33	45	165*	145	9·59	2·56	Pachmarhi	
·594	·672	·711	·659	+·030	92	89	86	89	0	7·2	6·8	7·0	−0·4	37	1			5		1		16	N 46° W	N 23° W	20	66	193*	244	7·50	4·16	Chikalda	
·319	·403	·441	·383		80	76	87	82		6·1	9·0	7·6			7		1	3	2	1	8	37	N 48° W		70		342		3·07	0·98	Kodaikanal†	Hill Stations, South India.
·350	·395	·426	·390		92	76	84	84		7·1	8·4	7·8		15	1	1	1		1	10	18	13	N 86° W		55		94*		3·72	0·83	Ootacamund	
·759	·955	·828	·847	−·002	70	69	59	66	0	6·6	6·0	6·3	+4·0?		2	4	13	20	7	11		3	S 42° E	S 23° E	50	50	259*	220	0	0	Aden	Extra India.
1·021	1·020	1·028	1·023	+·176	86	71	70	76	+14	0·7	0·8	0·8	−2·0		1	7	6	16	1	3	2	24	N 9° E	N 42° E	15	28	333*	276	0	0	Perim	
	·882	·878				77	77			4·8	5·7	5·3			8	1				12	19	20	N 71° W		72		255*		8·44	2·08	Minicoy	
·733	·800	·761	·765	+·038	85	83	69	79	+ 1	6·9	4·6	5·8	+1·0		2	2	2	17	26	10	1		S 10° E	S 8° E	70	63	145*	138	2·64	0·80	Zanzibar	
·785	·811	·810	·802	+·049	92	76	74	81	+ 6	5·6	5·2	5·4	−0·2			1	5	45	6	3			S 42° E	S 41° E	89	90	291	292	2·51	1·08	Port Victoria (Seychelles.)	
			·537	+·017				71	0																		259	285	1·25	0·32	Mauritius (Pamplemousses).	

† Wind variable 1.

Mean of 28½ days

* Corrected.

G. I. C. P. O.—No. 14894 Meteor.—12-2 03.—385.

Reg. No 242, Wr. [illegible]

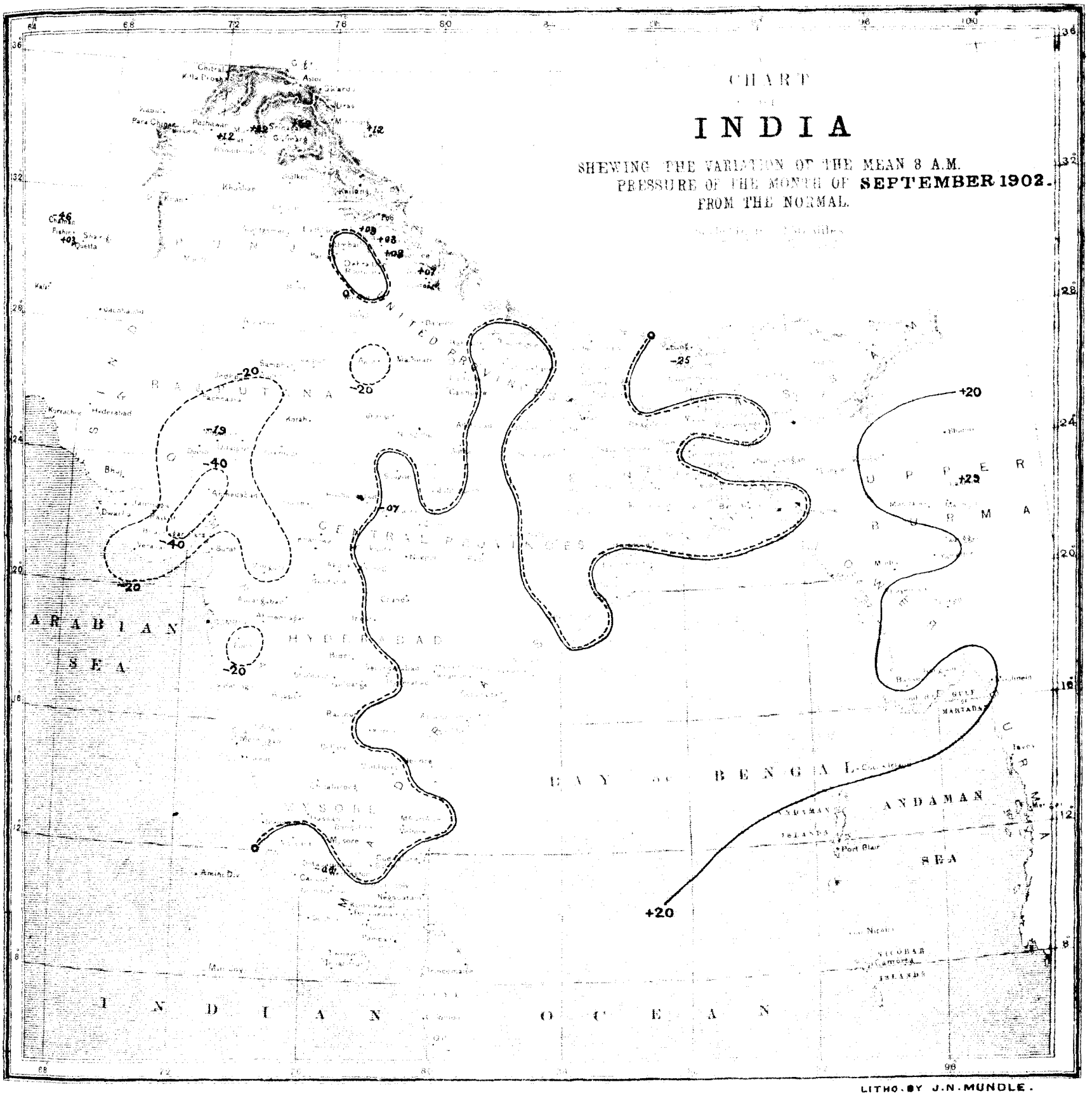
LITHO. BY J. N. MUNDLE, Govt. Press, Calcutta

Explanation.

The lines of the above Chart represent isobars or lines of equal barometric pressure, and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of ·05 inch. The isobars in the Bay of Bengal are filled in by means of the shore observations, and by comparison with the ordinary or normal distribution of pressure as given in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant Meteorological Reporter to the Government of India, and published by the Meteorological Department. Hence they have not the same validity as the isobars in the land area of India itself, but it is probable they deviate very little from the actual.

The mean 8 a.m. wind directions of the month are shewn by means of arrows flying with the wind, and are calculated by means of Lambert's formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0 to 2 miles per hour		one feather added to the wind arrow
,,	,, 2 to 5 ,, ,, ,,		two feathers ,, ,, ,, ,,
,,	,, 5 to 10 ,, ,, ,,		three ,, ,, ,, ,, ,,
,,	,, 10 to 20 ,, ,, ,,		four ,, ,, ,, ,, ,,
	over 20 ,, ,,		five ,, ,, ,, ,, ,,



LITHO. BY J.N. MUNDLE.

Explanation.

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other, one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

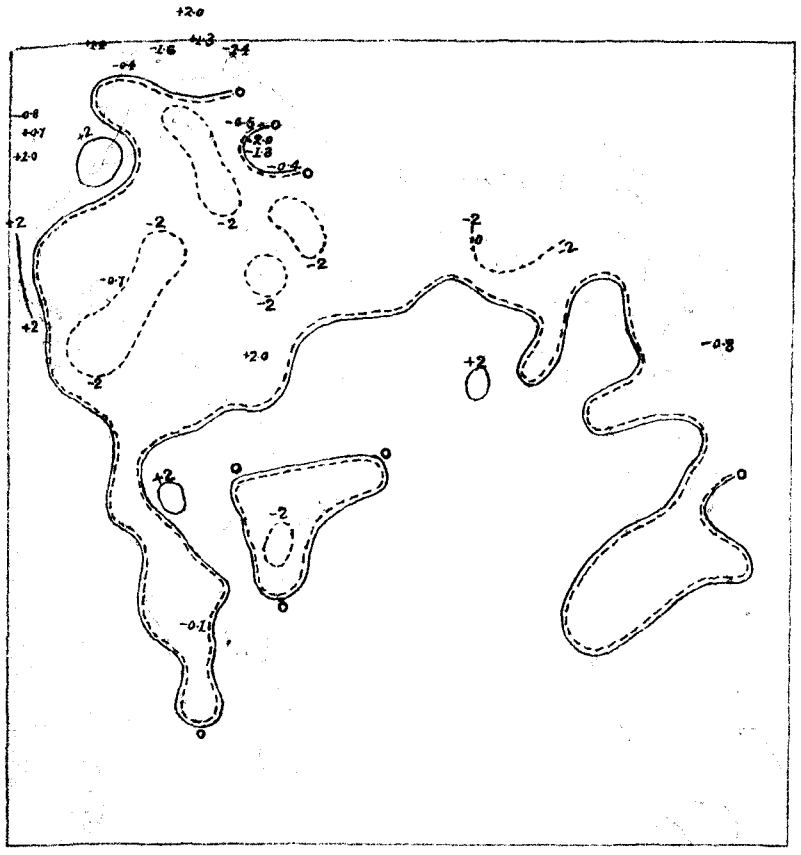
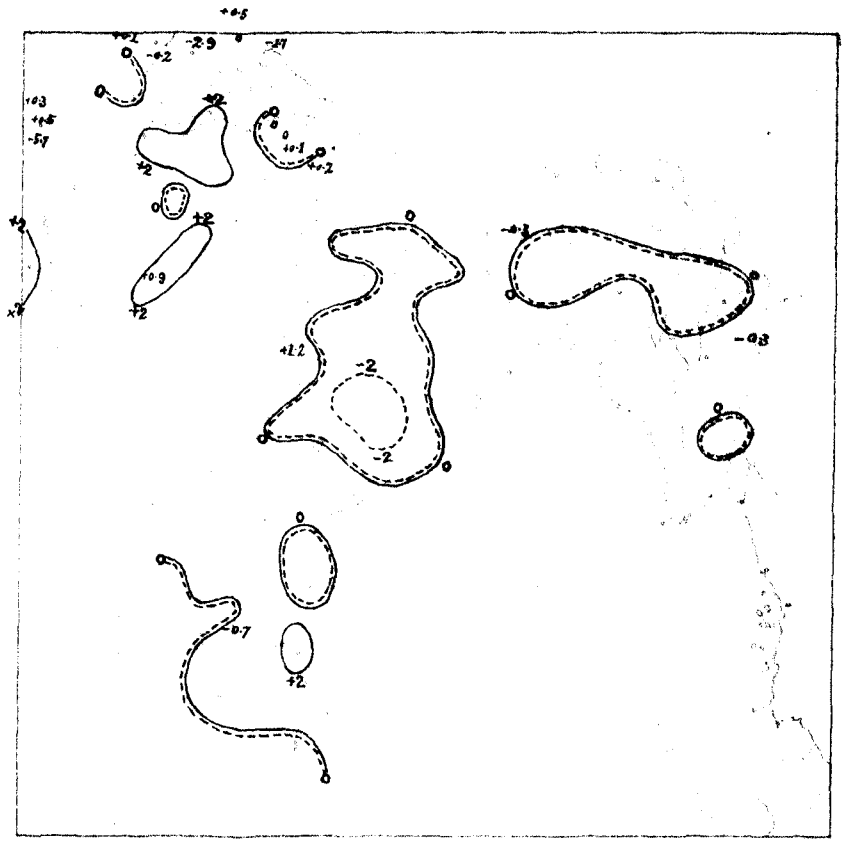


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous lines indicate that the mean temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

Continuous lines indicate that the mean minimum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

CHART SHEWING THE VARIATION OF THE MEAN DAILY TEMPERATURE OF THE MONTH FROM THE NORMAL.

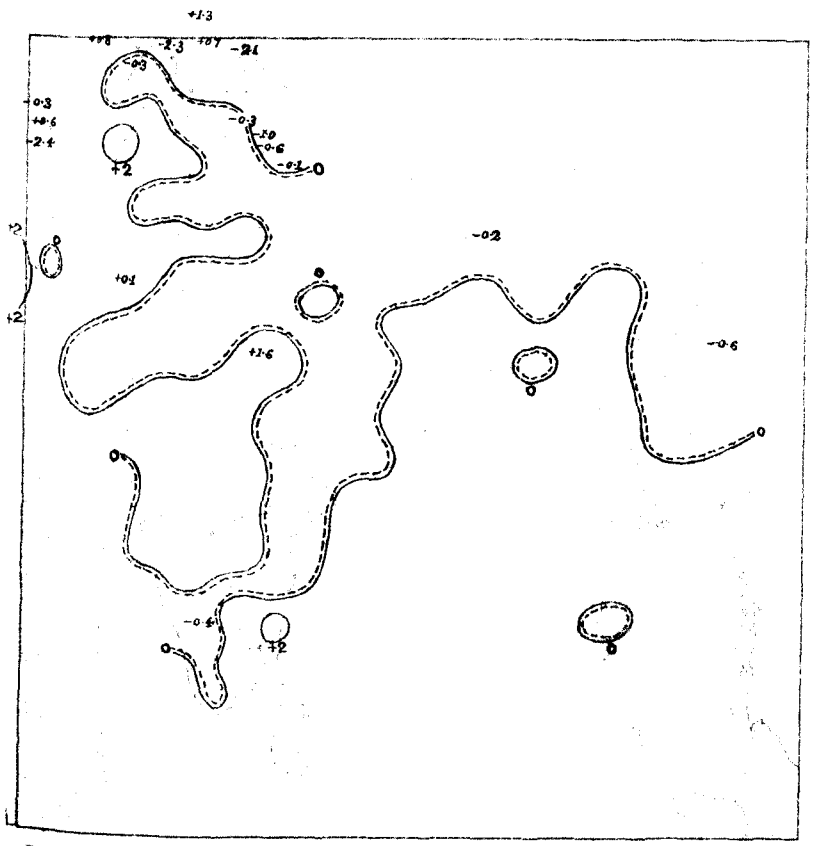
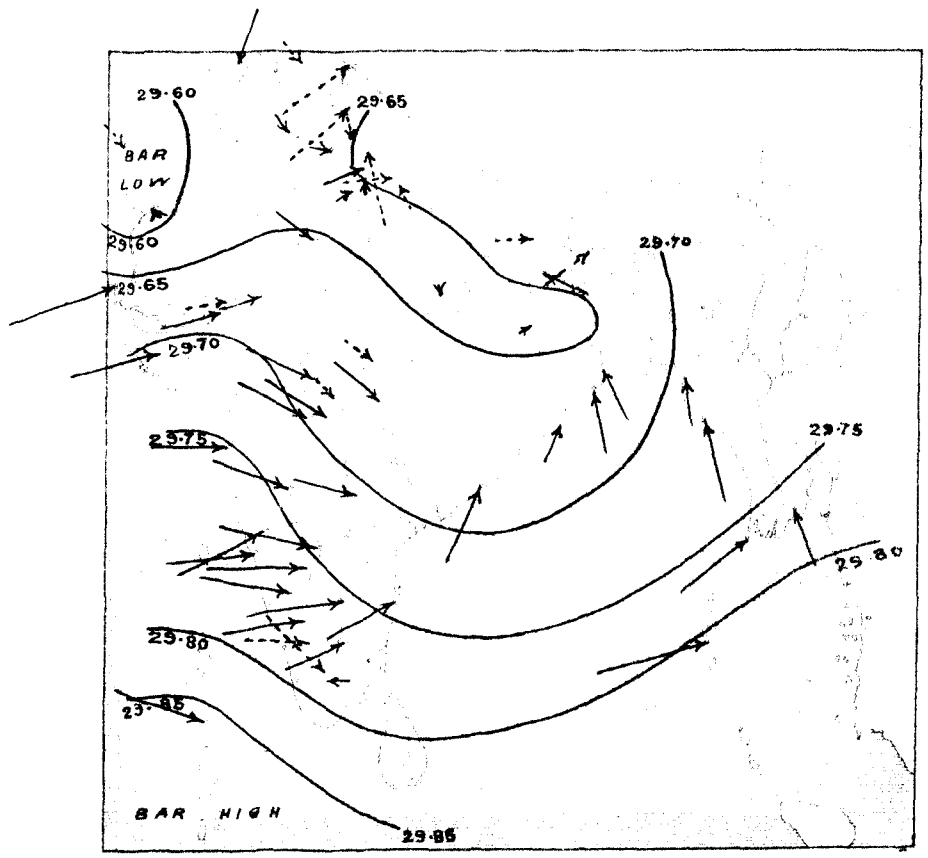


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF **SEPTEMBER 1902**.

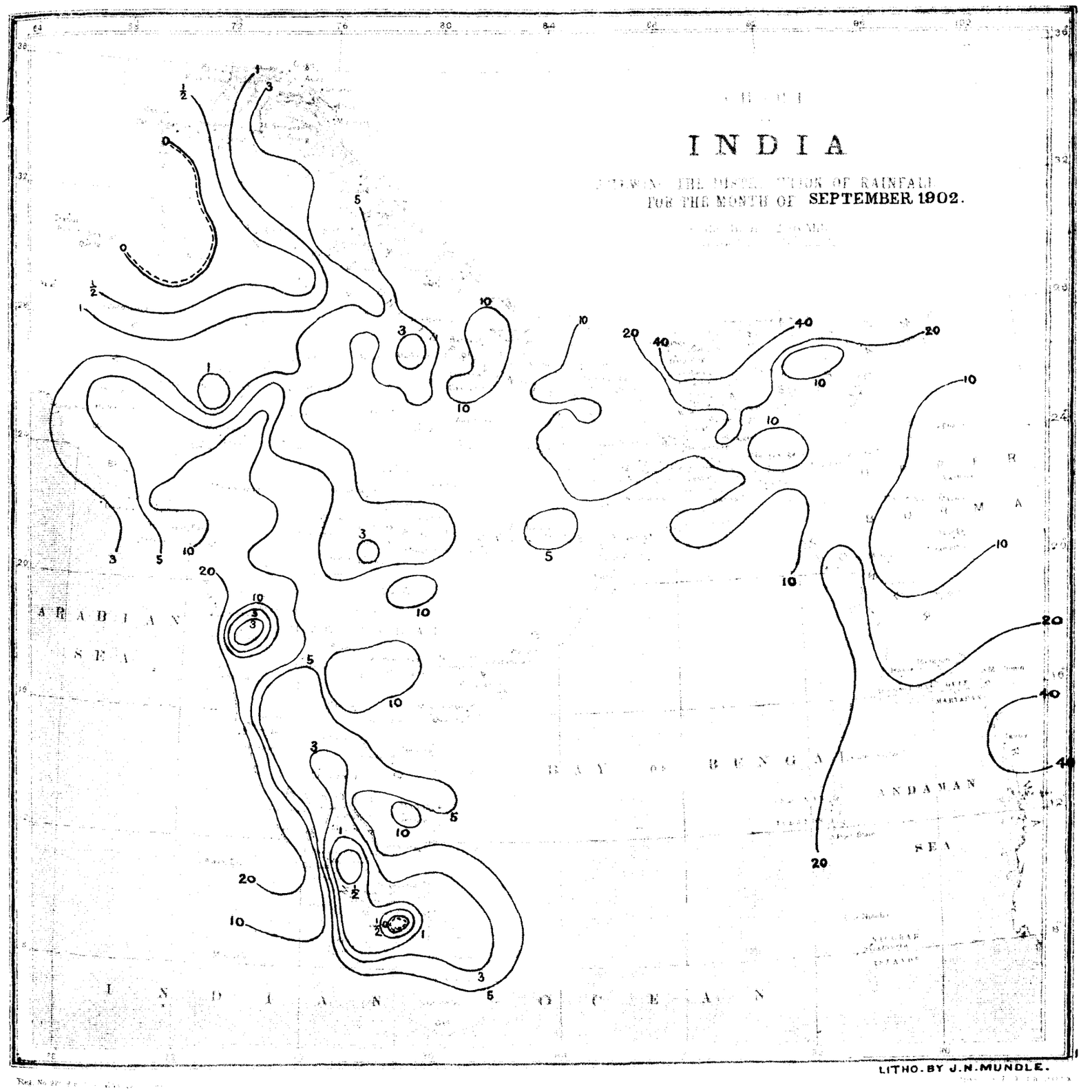


LITHO. BY J.N. MUNDLE, Calcutta

Explanation.

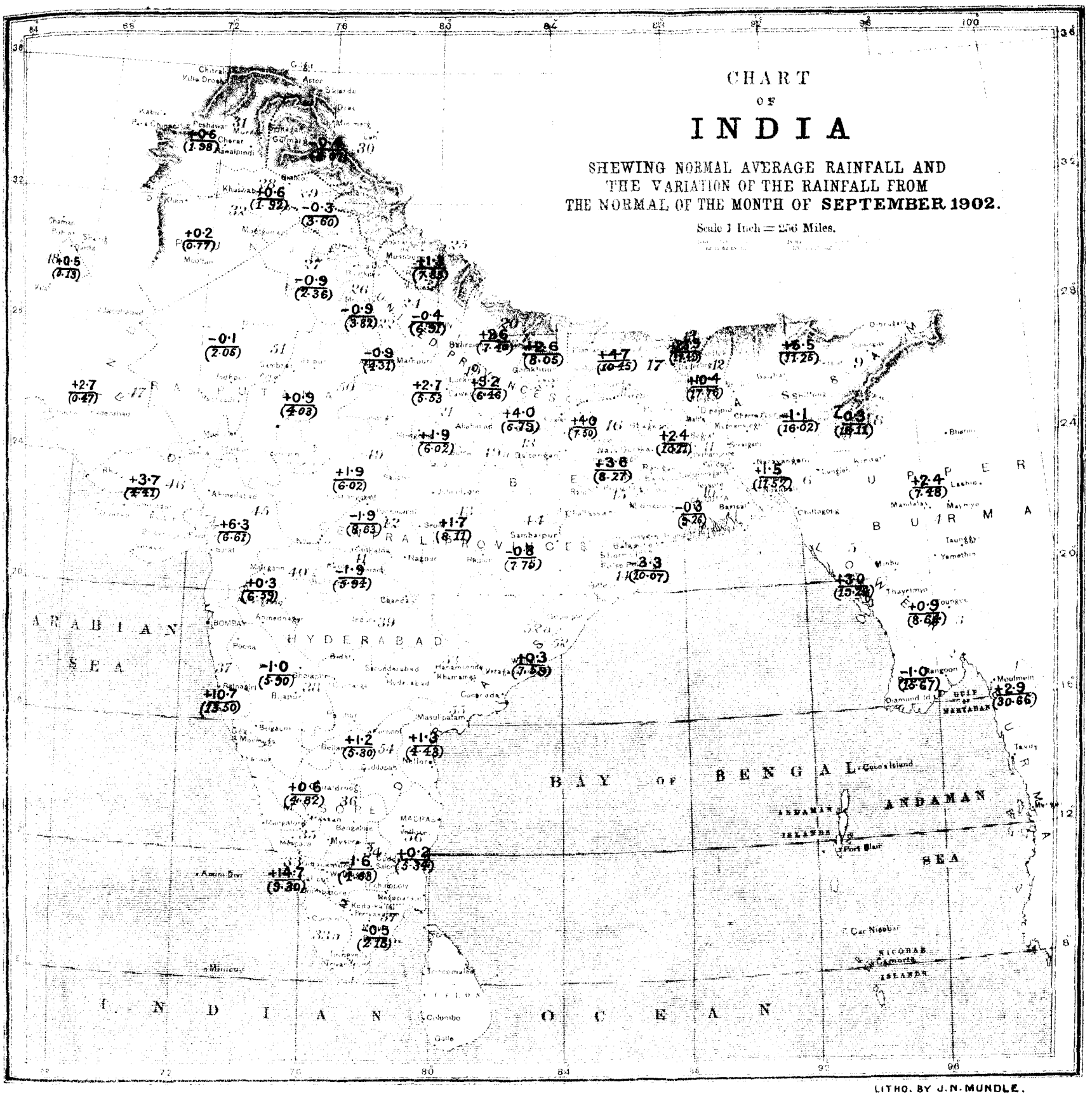
Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

The Chart is prepared in the same manner as the Monthly Charts which previously to 1890 appeared in the Annual Reports, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{8}{8}$th of an inch being equal to 100 per cent.



Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India except those at the Hill Stations over 3,500 feet in elevation (177 in number). The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those where it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.



LITHO. BY J. N. MUNDLE.

Explanation

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma, with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to [illegible] means. The country is divided into 57 areas, over each of which the meteorological conditions are fairly [illegible] staple crops similar in character; and the means (both actual and normal) for the month have been calculated, and the [illegible] given in the centre of each division (usually with a + or − sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The normal average rainfall is also given below in smaller figures enclosed with brackets so that the percentage variation can be at once estimated. The name of the district can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim
2. Lower Burma, Deltaic
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. United Provinces, East
19. South Oudh
20. North do.
21. United Provinces, Central
22. Do. do. West
23. Do. do. East Submontane
24. Do. do. West do.
25. Do. do. Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
33a Travancore
34. Madras, South Central
35. Coorg
36. Mysore
37. Konkan
38. Bombay Deccan
39. Hyderabad, North
40. Khandesh
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
49a Do. do.
50. Rajputana East, Central India West
51. West Rajputana
52. Madras, East Coast, North
52(a). Do. do. do. (a)
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, OCTOBER, 1902.

INTRODUCTION.

THIS review of the weather in India during the month of October 1902 is based on observations taken daily at 8 A.M. at 229 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 63 stations. The rainfall summary is based on the rainfall data of the meteorological observatories and the rainfall statements of the month published by the Provincial Governments that had been received up to the date of the publication of the review. A summary of the weather in the Bay of Bengal and the Arabian Sea, based on information extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given.

Summary of the chief features of the weather in India during the month of October, 1902.

October is pre-eminently a month of transition, during which the south-west monsoon winds begin to retreat from the north of the Bay, and cold-weather conditions begin to establish themselves over Northern India. The direction of movement of the cyclonic storms of the month is affected by these changes, and there is generally a marked difference in the trajectories of the storms of October and those of the three preceding months of the rains. At the same time cold-weather storms, advancing from the westward, ordinarily begin to appear in north-west India, and the first falls of snow ordinarily take place over the north west Himalayas during this month.

In October 1902 the weather was somewhat less disturbed than usual over the Bay area, and was more than usually disturbed over north-west India. Two storms occurred over the Bay, the second of which was accompanied with very extensive rainfall over the Peninsula, so that both in that area and over north-west India the total rainfall of the month was, on the whole, heavier than the average. At the commencement of the month, the mean temperature was excessive over the inland parts of the Peninsula, the Indus Valley and a large part of the Punjab, and was lower than usual over the whole of the remainder of the country, while the pressure was excessive everywhere. The principal feature of the weather of the first three days was the slight cyclonic storm over the Bay. This storm formed off the Burma coast and, advancing along a curved path, struck the Bengal coast near Balasore. It gave a considerable amount of rain to Burma on the 1st and 2nd, and to Bengal and Assam on the 3rd and 4th, after which it disappeared. This rainfall kept temperature low for several days, as is shown by the following comparative data from the 1st to the 7th for the Burma, Bengal and Assam divisions:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	1st October.	2nd October.	3rd October.	4th October.	5th October.	6th October.	7th October.
	°	°	°	°	°	°	°
Burma	−2·6	−2·2	−1·8	−0·9	0	+0·3	+0·5
Assam	−0·5	+0·5	−0·4	−5·8	−3·6	−3·5	−2·5
Bengal	−0·1	+0·7	−1·3	−4·8	−1·6	−1·1	−0·6
Orissa	−0·2	−0·3	−0·3	−0·2	−0·8	+0·7	+0·7
Bihar	−0·6	−0·3	−0·9	−2·6	−1·8	−0·9	−0·6
Chota Nagpur	−0·7	−0·7	−0·5	−0·3	−0·2	−0·5	−0·1

During these seven days the weather was generally quiet and fine over other parts of the Indian area, though a feeble depression in the extreme north-west on the 6th was accompanied with light showers over the north-west Himalayas. Showers of rain fell over the southern half of the Peninsula and parts of north-east India and Burma between the 8th and the 13th, keeping temperature unsteady, but generally low, over those areas. This is shown below :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	8th October.	9th October.	10th October.	11th October.	12th October.	13th October.
	°	°	°	°	°	°
Burma . . .	−0·9	−1·1	−1·2	+0·1	−0·2	+0·1
Assam . . .	−4·5	−4·0	−2·9	−1·8	−3·1	−2·2
Bengal . . .	−1·1	−1·7	−1·5	−0·4	+0·3	−0·1
Orissa . . .	+1·0	+1·3	+0·4	+0·5	+1·1	+0·7
Bihar . . .	−0·6	−0·3	−1·6	−1·3	−0·4	+1·1
Chota Nagpur . .	+0·7	+1·0	+0·6	+1·5	+1·0	+0·2
Mysore . . .	+1·4	−0·2	−1·4	−0·8	−1·1	0
Madras Coast . .	−0·7	−0·8	−1·3	−1·7	−1·3	−1·2
Madras Deccan . .	+2·8	+1·7	+0·1	−0·1	−0·5	+0·6
South India . . .	−1·4	−3·2	−2·2	−2·5	−1·5	−1·1

During this time pressure was almost continuously in excess all over the country. This excess was most marked on the 12th, when at almost every station the barometer marked more than 0·10 inch above the normal, and was more than 0·20 inch above at the stations for which comparative data are given below :—

STATION.	Variation from normal of 8 A.M. pressure, 12th October 1902.
	"
Chanda	+·218
Masulipatam	+·213
Waltair	+·210
Copalpur	+·208
Cuttack	+·203
Kurnool	+·203
Cocanada	+·202
Jalpaiguri	+·202
Nagpur	+·201

On the 13th there occurred a general brisk fall of pressure, and on the 14th the barometer read below the normal in the north-west, where a slight depression was appearing, and normal over the north-east of the Arabian Sea. The weather was showery and unsettled over the Bombay coast and the adjacent parts of Gujarat and the central portions of the country, and temperature had fallen fast over these areas. These low temperatures subsequently extended north-eastward through the Central Provinces to the Gangetic Plain, and the mean temperature was low over these areas till the 15th. The following gives temperature data from the 13th to the 16th for north Bombay and the more central parts of the country in illustration :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	13th October.	14th October.	15th October.	16th October.
	°	°	°	°
Gujarat . . .	+1·4	−3·1	−2·3	+0·6
Central India . .	+2·6	+0·3	−6·8	−1·7
Central Provinces . .	+2·0	+0·4	−3·6	−0·5
Berar	+3·3	−0·1	−3·8	+0·9

In the meantime a feeble depression, which had appeared in the north-west on the 14th, advanced north-eastward towards the hills on the 15th and 16th, and was accompanied with some showers among the north-west Himalayas on the 15th. The depression was accompanied with higher temperatures than usual over Sind, Baluchistan and the Punjab. The following gives data for the 14th, 15th and 16th :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	14th October.	15th October.	16th October.
	°	°	°
Sind	+3·4	+1·5	+1·9
Baluchistan	+3·6	+10·1	+5·9
Punjab	+2·9	+2·7	+1·6

During these three days pressure had been unsteady but had, on the whole, risen, especially in the north-west. On the 17th higher pressures than usual were again reported throughout the whole country. The excess, as on

the 12th, was greatest in north Madras, and amounted to more than 0·15 inch at the following places :—

Station.	Variation from normal of mean 8 A.M. pressure of 17th October 1902.
	"
Masulipatam	+·177
Nellore	+·172
Cocanada	+·171
Chanda	+·167
Waltair	+·165
Kurnool	+·158
Gopalpur	+·154

During the 16th and 17th a shallow cold-weather depression advanced eastward through Persia, Afghanistan and Baluchistan, and was shown over the south Punjab and northern Rajputana on the 18th, whence it drifted slowly eastward and broke up over the United Provinces on the 20th. The storm occasioned some precipitation along and near its track, and was succeeded by a fairly well-marked cool wave. The following gives comparative temperature data for the north-west in illustration :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	18th October.	19th October.	20th October.
	°	°	°
Punjab	+3·1	−0·5	−0·8
Sind	+5·2	+2·5	+0·1
Gujarat	+4·0	+3·1	+1·3
Rajputana	+3·8	+1·7	−0·4
Central India	+3·1	+3·4	+1·8
United Provinces	+2·5	+2·1	+0·7

During the period from the 17th to the 21st, with the exception noticed above, the weather was quiet and generally fine over India, with a high temperature over the central parts of the country. On the 22nd a change commenced. A depression which, however, never developed into a well-defined storm, apparently traversed the south of the Bay from east to west, and this storm ushered in the autumnal rains on the Madras coast. Steady rain continued over the south of the Peninsula from this day onward, accompanied with continuous lower temperatures than usual. The following gives temperature data for the Madras divisions from the 22nd to the 27th, and shows the low temperatures over south India :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of					
	22nd October.	23rd October.	24th October.	25th October.	26th October.	27th October.
	°	°	°	°	°	°
Mysore	+0·1	+1·8	+0·2	−1·7	+0·6	−0·1
Madras Coast	+0·9	+0·3	−1·0	−1·3	−0·9	+0·1
Madras Deccan	+1·7	+2·8	+3·0	+0·4	+0·6	+0·3
South India	+0·1	−0·6	−2·8	−3·4	−1·8	−3·6

On the 27th a cyclonic storm developed off the east Ceylon coast and, advancing north-westward, struck the Coromandel coast near Madras at 8 A.M. on the 28th. It continued to advance north-westward, but very slowly, during the 29th and 30th, and apparently filled up over the Madras Deccan on the 31st. The principal feature of the storm was the accompanying heavy and extensive rainfall, the fall having extended northward as far as Central India. The heaviest falls were in the coast districts, and exceeded 7·50 inches in 24 hours at the following places on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Chingleput	Vadasemmanjeri	28th October	10·70
	Saidapet	" "	10·10
	Chingleput	" "	9·98
	Kovelong	" "	9·43
	Poonamallee	" "	8·20
	Attipat	" "	7·85
Kistna	Manginapudi	29th "	11·72
Nellore	Kandukur	" "	10·66
Kistna	Nizampatam	" "	10·20
	Avanigadda	" "	9·58
	Masulipatam	" "	9·50
	Pandraka	" "	9·50
Nellore	Atmakur	" "	9·02
Kistna	Bapatla	" "	8·54
	Repalle	" "	8·29
Nellore	Udayagiri	" "	7·95
	Kavali	" "	7·90
Godavari	Mummidivaram	" "	7·10
	Coringa	" "	7·39
		30th "	15·65
	Razole	" "	10·00
Kistna	Avanigadda	" "	9·96

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
GODAVARI . .	Ramachandrapuram .	30th October .	8·74
KISTNA . . .	Repalle . . .	,, ,, .	8·60
GODAVARI . .	Amalapuram . .	,, ,, .	7·98
	Mummidivaram. .	,, ,, .	7·74

During this disturbed period over the Bay area and the Peninsula the weather was generally quiet over northern India, but between the 22nd and the 25th, and again between the 29th and 31st, slight cold-weather storms advanced into north-west India from the countries to the westward. These storms occasioned light to moderate precipitation over the hills and submontane regions of Upper India, and temperature was generally low for the time of year over this area.

Pressure.—The mean pressure of October was, as usual, moderately uniform. A large high pressure area covered the greater part of northern and central India and the Deccan, while pressure was relatively low over upper Sind, the Peninsula and the Bay. The total range of the mean pressure over India was 0·014 inch. Pressure was, however, above the normal everywhere by amounts averaging 0·077 inch.

Compared with this general condition, pressure was below the normal over the greater part of north-west India, the west and south of the Peninsula and Tenasserim. The deficiency was moderate over the south-west of the Peninsula (Mangalore—0·052″) and west Ceylon (Colombo —0·044″). Over the remainder of India the mean pressure, relatively to the general condition, was in excess. The excess was moderate along the foot of the north-east Himalayas (Gorakhpur +0·029″) and over Orissa, north Madras and the south of the Central Provinces (Cuttack +0·033″ and Chanda +0·041″).

The vertical pressure anomalies were generally negative, but, except in the Sikkim region, were generally slight.

The following table gives the mean pressure variations and anomalies of the month for the eleven meteorological provinces of India:—

METEOROLOGICAL PROVINCE.	Variation from normal of mean 8 A.M. pressure of October 1902.	Pressure anomaly, October 1902.
	″	″
Burma Coast and Bay Islands . . .	+·074	—·003
Burma, Inland	+·098	+·021
Assam	+·097	+·020
Bengal and Orissa	+·094	+·017
Gangetic Plain and Chota Nagpur . . .	+·093	+·016
Upper Sub-Himalayas	+·078	+·001
North-West Frontier Province, Indus Valley and North-West Rajputana.	+·068	—·009
East Rajputana, Central India and Gujarat .	+·070	—·007
Deccan	+·081	+·004
West Coast	+·044	—·033
South India	+·069	—·008

Temperature.—The temperature variations from the normal were not very large, but, owing to the occurrence of rain in different parts of the country, the distribution, relatively to the normal, was somewhat irregular.

The mean day or maximum temperature was above the the normal over Tenasserim, the Burma coast, the east Gangetic Plain, and over the greater part of the Peninsula except the Madras coast. The area of maximum excess, which was between 2·0° and 2·6° covered Orissa and the east of the Central Provinces.

Over the greater part of northern India and over the Madras coast, the mean maximum temperature of the month was below the normal. The deficiency was considerable at Sibsagar (—3·7°), at Tinnevelly (—3·2°) and at Montgomery (—2·8°).

The mean minimum or night temperature was above the normal over north-west and central India, the west of the Peninsula and Tenasserim. The excess was greatest and 5·0° or more at Khushab (+5·3°), at Lahore (+5·5°), at Mooltan (+5·0°), at Jacobabad (+5·4°), and at Kurrachee (+5·5°).

The mean temperature of the month was below the normal over the inland parts of Burma, Assam, and along the foot of the Himalayas as well as over the Madras coast and South India. The deficiency was greatest in the extreme north-east, where Bhamo was 3·0°, Sibsagar 3·5° and Dhubri 2·2° below the normal.

Over the remainder of India the mean temperature was in excess. The excess was more than 2·0° in three areas. The first covered the north Konkan and the Bombay Deccan (Sholapur, +2·9°); the second, the Indus Valley (Kurrachee, +3·6°), and the third, the submontane Punjab (Sialkot, +2·6°). At most of the Himalayan hill stations the mean temperature was in defect, but in Baluchistan it was in excess.

The following table gives temperature data for the eleven meteorological provinces of India:—

METEOROLOGICAL PROVINCE.	VARIATION OF ACTUAL FROM NORMAL OF		
	Mean maximum temperature, October 1902.	Mean minimum temperature, October 1902.	Mean daily temperature, October 1902.
	°	°	°
Burma Coast and Bay Islands . .	+0·9	+0·2	+0·5
Burma, Inland	—1·5	—1·4	—1·5
Assam	—2·2	—2·9	—2·6
Bengal and Orissa	—0·1	—0·8	—0·5
Gangetic Plain and Chota Nagpur .	—0·3	+0·4	+0·1
Upper Sub-Himalayas . . .	—1·8	+2·3	+0·3
North-West Frontier Province, Indus Valley and North-West Rajputana.	—0·8	+4·2	+1·7
East Rajputana, Central India and Gujarat.	—0·3	+2·3	+1·0
Deccan	+1·0	+1·6	+1·3
West Coast	+0·5	+1·1	+0·8
South India	—0·4	—0·2	—0·3

Winds.—Over the greater part of the Indian region the winds were, as usual, characterised by great variability, but there were two important variations from the normal conditions of the month. Along the Burma coast the wind in October is, ordinarily, south-easterly, and over the Deccan and South India, north-north-easterly and north-easterly, while during the month under review the winds on the Burma coast were north-easterly, and over the Peninsula nearly easterly. These departures from the normal directions were apparently directly related to the anomalous distribution of pressure over the Peninsula and the Bay. Over the Equatorial regions, the winds, likewise, varied irregularly from the normal, the wind having been more southerly than usual at the Seychelles, and more easterly than usual at Zanzibar.

Humidity.—The variations of the mean humidity from the normal were fairly strongly marked. The air was drier than usual over the greater part of the Bay, Burma, north-east India and the eastern half of the central parts of the country. It was, likewise, drier than usual over the greater part of the West Coast and over the Bombay Deccan. The maximum deficiency in the relative humidity was at Sholapur. Over the remainder of India the relative humidity was in excess—more particularly over the Punjab, Rajputana, and the adjacent districts of Gujarat. The maximum excess in the relative humidity was at Lahore. At practically all the hill stations the relative humidity was in excess, the variation at Leh and Simla having been large.

The following table gives variation data of the mean aqueous vapour pressure and mean humidity of the nine meteorological provinces for October 1902 : —

METEOROLOGICAL PROVINCE.	MEAN ABSOLUTE HUMIDITY.		MEAN RELATIVE HUMIDITY.	
	Average actual, October 1902.	Variation of actual from normal, October 1902.	Average actual, October 1902.	Variation of actual from normal, October 1902.
	"	"	%	
Burma Coast and Bay Islands	·895	+·007	81	—3
Bengal and Orissa	·806	—·031	77	—5
Gangetic Plain and Chota Nagpur.	·627	—·012	66	—4
Upper Sub-Himalayas	·503	+·035	60	+4
North-West Frontier Province, Indus Valley and North-West Rajputana.	·612	+·107	61	+6
East Rajputana, Central India and Gujarat.	·490	+·067	47	+5
Deccan	·584	+·008	62	—1
West Coast	·846	+·019	78	—4
South India	·664	+·015	74	+1

Cloud.—The sky was unusually clear of cloud over the Bay Islands, Burma and the Chittagong division of Bengal. The cloud amount, on the mean of the month, was also in defect between Lats. 12°N. and 16° N. across the Peninsula, but in this region the deficiency was small. There was also a slight deficiency of cloud over Orissa and Gujarat. Over the whole of the remainder of India, both on the hills and plains, the cloud amount, on the mean of the month, was in excess of the normal. The excess was considerable over the Indus Valley, at the foot of the Kumaun Himalayas, over eastern Rajputana, the Gangetic Plain and part of the Deccan, and over the south of the Peninsula. The excess was also considerable at several of the hill stations.

The following table gives variation data of the mean cloud amount of the nine meteorological provinces for October :—

METEOROLOGICAL PROVINCE.	MEAN CLOUD AMOUNT.	
	Average actual, October 1902.	Variation of actual from normal, October 1902.
Burma Coast and Bay Islands	4·2	—1·5
Bengal and Orissa	4·2	—0·3
Gangetic Plain and Chota Nagpur	3·4	+0·4
Upper Sub-Himalayas	1·4	+0·5
North-West Frontier Province, Indus Valley and North-West Rajputana.	1·9	+0·9
East Rajputana, Central India and Gujarat	2·2	+0·4
Deccan	5·1	+1·0
West Coast	4·2	—0·2
South India	6·4	+0·2

Rain.—The weather during the month of October was somewhat more disturbed than usual, so that Baluchistan, the Punjab, and the adjoining parts of the United Provinces and of Rajputana received somewhat heavier rain than usual. The most disturbed period during the month over this area was between the 18th and 20th, when rain was received from a cold-weather disturbance. Burma, Assam and north-east India received a general moderately heavy burst of rain from a storm in the first week of the month, but after that period the rainfall, to a great extent, ceased, and the total fall of the month was considerably below the normal. Over the central parts of the country and north Bombay the month's rainfall was generally short of the average, and in some places hardly any rain fell throughout, but further to the southward over the greater part of the Peninsula the rainfall was excessive. This excess was, to a considerable extent, due to a cyclonic storm which struck the Madras coast on the 28th, and carried rain over a very large part of the Peninsula.

The following table gives the mean actual, and the mean

normal and variation data of the eleven meteorological provinces for October 1902:—

METEOROLOGICAL PROVINCE.	RAINFALL.			
	Mean actual, October 1902.	Mean normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal, October.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	4·69	8·69	—4·44*	—51
Burma, Inland	3·65	4·77	—1·12	—23
Assam	2·89	4·83	—0·89 *	—18
Bengal and Orissa	2·84	5·02	—2·18	—43
Gangetic Plain and Chota Nagpur	0·70	2·63	—1·93	—73
Upper Sub-Himalayas	0·66	0·37	+0·25 *	+68
North-West Frontier Province, Indus Valley and North-West Rajputana.	0·09	0·05	+0·04	+80
East Rajputana, Central India and Gujarat.	0·22	0·63	—0·41	—65
Deccan	2·24	2·73	—0·48 *	—18
West Coast	6·47	7·47	—1·00	—13
South India	11·31	7·59	+3·72	+49

* A reference to Table I will show that the means in columns 2 and 3 are derived from a smaller number of stations than the means in the 1st column. The sum of the figures in columns 2 and 3 will, therefore, not agree with the figures in column 1.

So far the discussion has dealt mainly with the meteorological changes and conditions prevailing over India alone. In the following paragraphs some account is given of the changes and interactions which appear to have affected more or less the whole Indian monsoon area.

On the 8th and 9th October a well-defined depression passed from the Black Sea into the Caspian area, and a fall of pressure occurred over Asiatic Turkey, Persia and Arabia, but the storm itself never entered the monsoon area, and the relative distribution of pressure over the Persian and Arabian region was unaffected. Similarly, on the 13th and 14th a storm from Central Europe passed into the Caspian region. The barometer fell very rapidly at Tiflis and Baku, and between the 13th and 15th pressure gave way slightly to rapidly over Persia and Arabia. As was the case in the preceding period, this fall was unaccompanied with any change in the relative distribution of pressure, the relatively high pressures over Asiatic Turkey continuing unaffected by the general fall. The next period of barometric decrease in Persia was between the 19th and the 21st or 23rd, during which period an area of high pressure prevailed over the Caspian area, and the barometric fall did not advance from the Caspian region. On this occasion, however, the relative distribution of pressure changed, and the area of high pressure over Asiatic Turkey gave way and was replaced by a low pressure area, while southerly winds were reported from Baghdad and Bushire. The change on this occasion was hence inherently different from that on the two previous occasions when the barometric fall simply passed over the Persian area without modifying the pressure distribution. In this connexion it is interesting to note that, while no rain or disturbance of the weather, occurred during the two preceding falls of the barometer rain was reported from Persia and north Arabia between the 20th and 23rd. On the two last days of the month there was another barometric fall over the Persian area, very general and considerable in character. The fall was well-marked at Tiflis and Baku, but pressure was high at this time over the Caspian region. The fall was thus apparently unconnected with the advance of a depression from the Caspian, while the relative distribution of pressure over Asiatic Turkey and Persia was unaffected by the fall.

The meteorological information from western Siberia for the month of October was very fragmentary, and was of very little assistance in tracing a connexion between the weather changes of that area and those of Northern India. On the 14th, 15th and 16th the barometer fell rapidly in western Siberia. A slight barometric fall occurred about the same time at Kashgar, Gilgit and Chitral, but the change was generally earlier at the latter stations than in Siberia. Rain, however, occurred in Further Kashmir on the 16th and 18th. At Kashgar, Gilgit and Chitral the barometer fell briskly during the 23rd, 24th and 25th, and heavy rain and snow fell at Leh on the 25th and 26th. In western Siberia at this time the pressure changes were large and irregular, and were apparently in no way connected with the changes proceeding over the mountain region around the north-west of India. In the South-East Trades region the barometric changes were generally small. Pressure gave way on the first three days; again between the 8th and the 10th; again between the 14th and 16th; and again between the 19th and the 22nd; so that there existed a faint resemblance between the changes of pressure in the Equatorial regions and those over the Persian area.

The daily variations of pressure from the normal were more regular and instructive than the daily changes, though in the case of western Siberia the information was equally incomplete. In Persia and Arabia pressure was above the normal up to the 8th It then decreased and was lower than usual on the 9th and 10th. From the 11th to the 20th pressure was generally in excess over Persia, but at Jask, Perim and Aden there occurred a period of deficient pressure between the 15th and the 17th. On the 20th or 21st pressure fell below the normal at Baghdad, the Persian stations, and at Aden and Perim, and at the two last stations so continued till the close of the month. In Persia pressure was less steady and changed irregularly between the 20th and the end of the month. In the Equatorial regions pressure was lower than usual from the 1st to the 4th; higher from the 5th to the 19th; and lower from the 20th to the end of the month.

The following table gives the mean pressure variation

of the month for various stations in India and in the monsoon area:—

STATION.	Mean pressure variation of October 1902.
	Inches.
Chanda (C. P.)	+0·118
Cuttack (Orissa)	+0·110
Lahore (Punjab)	+0·075
Quetta (Baluchistan)	+0·053
Jask (Persian Area)	+0·034
Muscat („ „)	+0·045
Bushire (Persian Area)	+0·039
Baghdad (Asiatic Turkey)	+0·048
Bombay	+0·049
Perim (Arabia)	+0·012
Aden („)	−0·016
Colombo (Ceylon)	+0·033
Seychelles	−0·006
Zanzibar	+0·011
Mauritius	−0·032

The preceding data show that, on the mean of the month, pressure was in excess almost everywhere over the monsoon area, the region of maximum excess lying over the north-east of the Peninsula. From this region the amount of the excess diminished southward and south-westward, and the excess disappeared at the Seychelles; it also diminished westward, disappeared at Aden, and was very slight at Perim; finally, it diminished irregularly north-westward as after diminishing steadily as far as Jask and Bushire, it increased again at Baghdad. Summarising the preceding data, the observations show that pressure was in very large excess over India, and was in more or less excess generally over the north of the monsoon area; that this excess disappeared about Aden in the west, and at the Seychelles in the south; and that it was replaced by a considerable deficiency at Mauritius. There was thus a large excess of pressure over the north-east monsoon region, and a deficiency in the south. This change in the relative distribution of pressure resulted in a diminution of the normal gradient, and the establishment of even more uniform pressures than usual over the monsoon area as a whole, though locally over the Bay area pressure was a trifle less uniform than usual. It likewise had the effect of transferring the area of lowest pressure southward, and thus influencing to some extent the place of origin of the various cyclonic storms of the month, while the increased uniformity of pressure probably had an effect in increasing the number of the storms of the month.

Atmospheric Pressure.

The mean monthly pressure was in excess of the normal at all stations in India, Burma and Ceylon, both on the hills and plains. The excess was greatest and more than 0·1 inch along the foot of the hills in north-east India and at several stations in Madras and Orissa, and was least and less than 0·05″ at stations on the Malabar coast and in west Ceylon. On the mean of the whole land area the excess amounted to 0·077 inch, an anomaly larger than any hitherto reported in October. The largest positive anomalies in October from 1876 to the present time have been—

	Inch.
In 1888	0·039
„ 1896	0·040
„ 1900	0·040
„ 1902	0·077

This excess of pressure extended westward through Baluchistan (Quetta, + 0·053″) and Afghanistan into Persia (Bushire +0·039″) and into north Arabia (Muscat, +0·045″), but in south-west Arabia the variations were irregular, while in the Equatorial regions the mean pressure was generally below the normal.

Pressure was, relatively to the general condition, in local defect over the extreme north-west of India, the west and south of the Peninsula, and in Tenasserim. Pressure was in slight local defect over the greater part of this area, but in Upper Sind and over the west of the Peninsula the local deficiency was moderate to considerable and exceeded 0·020″ at the stations for which comparative data are given below:—

STATION.	Variation from normal of mean 8 A.M. presure of October 1902.	Pressure anomaly, October 1902.
	″	″
Mangalore	+·025	−·052
Colombo	+·033	−·044
Calicut	+·035	−·042
Mysore	+·040	−·037
Karwar	+·044	−·033
Mormugao	+·044	−·033
Cochin	+·044	−·033
Chitaldroog	+·045	−·032
Salem	+·046	−·031
Bangalore	+·047	−·030
Trivandrum	+·047	−·030
Veraval	+·047	−·030
Bombay	+·049	−·028
Jacobabad	+·049	−·028
Poona	+·051	−·026

Over the whole of the remainder of the country the mean pressure, relatively to the general condition, was in

excess. The excess was greatest and more than 0·020″ in two areas. The first lay along the foot of the north-east Himalayas and thence extended southward into parts of northern Burma. The following gives comparative data for the stations in this area:—

STATION.	Variation from normal of mean 8 A. M. pressure of October 1902.	Pressure anomaly, October 1902.
	″	″
Gorakhpur	+·106	+·029
Purnea	+·105	+·028
Kindat	+·105	+·028
Allahabad	+·104	+·027
Bahraich	+·104	+·027
Jalpaiguri	+·100	+·023
Narayanganj	+·100	+·023
Silchar	+·100	+·023
Bhamo	+·099	+·022
Dhubri	+·098	+·021

The second area covered Orissa, north Madras and the adjacent parts of the Central Provinces, and the excess was greatest at Chanda (Central Provinces), where, however, the variation from the normal was somewhat doubtful.

The following gives comparative data for the stations in the second area:—

STATION.	Variation from normal of mean 8 A.M. pressure of October 1902.	Pressure anomaly, October 1902.
	″	″
Chanda	+·118	+·041
Cuttack	+·110	+·033
Gopalpur	+·104	+·027
Nagpur	+·104	+·027
Masulipatam	+·103	+·026
Waltair	+·102	+·025
False Point	+·100	+·023
Cocanada	+·099	+·022
Sambalpur	+·099	+·022
Calcutta	+·099	+·022

The mean pressure of the month over eastern India was slightly less uniform than usual. A large area of high pressure covered upper Burma, the greater part of northern and central India and the Deccan, while pressure was relatively low in Malabar and over the south-west of the Bay. The total range of the mean 8 A.M. pressure was 0·114 inch, which was slightly greater than usual. The actual distribution of pressure, on the mean of the month, is given in Plate I, and shows the large area of uniformly high pressure lying over northern and central India.

The excess of pressure prevailing over the plains extended upward to the elevation of the hill stations, but the excess was generally slighter at this elevation than on the plains. An exception was, however, shown in the Baluchistan-Sind area, where the mean monthly pressure excess was slightly greater at Quetta than that at Jacobabad. The vertical pressure anomalies were hence negative except in the Baluchistan-Sind region but the amount of the anomalies was slight or small generally. The following gives data for ten pairs of stations:—

HILL STATION.	Variation from normal of pressure, October 1902.	PLAIN STATION.	Variation from normal of pressure, October 1902.	Vertical pressure anomaly (Hill-Plain).
	″		″	″
Quetta	+·053	Jacobabad	+·049	+·004
Leh	+·032	Lahore	+·075	—·043
Murree	+·052	Peshawar	+·064	—·012
Simla	+·063	Ludhiana	+·080	—·017
Chakrata	+·054	Roorkee	+·087	—·033
Ranikhet	+·072	Bareilly	+·088	—·016
Darjeeling	+·026 ?	Dhubri	+·098	—·072 ?
Mount Abu	+·053	Deesa	+·066	—·013
Pachmarhi	+·080	Hoshangabad	+·088	—·008
Wellington	+·035	Coimbatore	+·057	—·022

The chief features of the pressure distribution of October, 1902, were as follows:—

(1) A general excess of pressure over the whole land area, averaging 0·077 inch in amount.

(2) A large excess of pressure along the foot of the north-east Himalayas and the north Madras coast.

(3) A slight excess of pressure along the Malabar coast and a moderate excess over the Indus Valley.

(4) Negative vertical pressure anomalies over the whole country except the Indus Valley region. The vertical anomalies were, however, slight generally.

Barometric depressions and cyclonic storms of the month.

Two well-defined and one diffused depression appeared over the Bay during the month of October 1902, while in North-West India there occurred three or four small comparatively unimportant depressions of the cold-weather type.

At the commencement of the month pressure exceeded the normal everywhere, but while the excess was between 0·100″ and 0·150″ over the central parts of the country, it was less than 0·025″ over the east of the Bay. Within this area of only trifling excess the cyclonic storm of the first week of the month was developed :—

Cyclonic storm of the 1st to the 3rd over the Bay.—The following gives marine data for the east and north of the Bay for the 1st :—

Name of Vessel.	8 A.M. Position.		Barometer, as corrected by Calcutta	Wind		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Nadir*	11 20	95 13	29·855	NW	3	Light rain squalls and sea slight.
S.S. *Orissa*	13 46	93 48	·822	SW	4	Cloudy and sea slight.
S.S. *Shahzada*	15 33	94 55	·865	SW	3	Cloudy and threatening and moderate sea; 4 P.M. occasional rain squalls.
S.S. *Katoria*	Near Rangoon.		·765	...	...	Noon dull; cloudy.
S.S. *Maharani*	Rangoon.		·774	...	...	4 A.M. fine.
S.S. *Vadala*	18 00	91 25	·801	NE	2	Continuous rain.
S.S. *Wildenfels*	19 04	85 52	·886	NNW	2	
S.S. *Lawada*	19 07	90 10	·838	N	2	Sea smooth and fine; noon overcast.
S.S. *Ikhona*	19 15	87 12*	·742	SW	2	Fine.
S.S. *Purulia*	19 22	89 48	·821	NE	2	Smooth sea and fine; 4 P.M. overcast.
S.S. *Purnea*	19 29	89 42	·861	N	4	Smooth sea and fine.
S.S. *Nurani*	Eastern Channel.		·783	...	...	Smooth sea and clear.
S.S. *Kistna*	Saugor Island.		·820	NE	2	Fine.
S.S. *Kapurthala*	Chittagong.		·814	...	...	Midnight occasional rain.
F.L.V. *Torch*	Ridge.		·914	N	2	Fine.
F.L.V. *Planet*	Intermediate.		·906	N	2	

* Noon position.

The above shows that at 8 A.M. on the 1st northerly and north-easterly winds prevailed off the Sandheads and on board the *Purnea*, the *Purulia*, the *Lawada* and the *Vadala*, while south-westerly winds were reported on board the *Ikhona*, the *Orissa* and the *Shahzada*. Hence the centre of the developing depression probably lay between the *Orissa* and the *Shahzada* on the one hand, and the *Vadala* on the other, and probably nearer the latter vessel than the former as continuous rain was falling on board the *Vadala*.

The following gives 8 A.M. observations around the east and north of the Bay for the 1st :—

Station.	Pressure.			Wind		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	″	″	″				Inches	
Moulmein	29·911	+·012	+·076	Calm.	2	6	0·22	
Rngoon	·891	+·034	+·054	ENE	4	10	0·10	
Diamond Island.	·866	+·023	+·041	SE	8	10	1·27	Drizzling rain.
Bassein	·879	+·034	+·066	SE	5	8	0·52	
Akyab	·851	+·017	+·039	NE	3	10	0·32	
Chittagong	·827	--·004	+·013	NNE	3	4	...	
Barisal	·831	+·008	+·034	NNW	2	0	...	
Calcutta	·875	+·012	+·090	NW	3	0	...	
Saugor Island.	·862	+·005	+·089	NNE	5	0	...	Sea smooth.
Balasore	·882	+·006	+·090	N	1	0	...	
False Point	·874	+·008	+·103	NW	3	0	...	
Cuttack	·885	+·009	+·106	Calm	0	0	...	
Gopalpur	·880	+·010	+·096	NNW	8	0	...	
Waltair	·891	+·012	+·096	SW	5	8	...	Sea smooth.
Cocanada	·895	+·018	+·102	NNW	6	9	0·60	
Masulipatam	·899	+·005	+·109	Calm.	3	4	0·02	
Nellore	·894	+·016	+·094	SSE	3	1	..	
Madras	·898	+·015	+·079	WSW	4	6	...	Sea smooth.

The preceding data show that the barometer was falling very slightly over south-east Bengal, but was rising elsewhere. The winds were south-easterly and the weather rainy on the Burma coast, north-easterly at Akyab, and north-north-westerly in Bengal. The land observations hence confirm the presence of a slight barometric depression over the east of the Bay.

October 2nd.—The depression had intensified somewhat during the previous 24 hours, and the centre lay apparently

in Lat. 18° 30′ N. and Long. 90° E. The following gives marine data for this dav :—

Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer (as corrected by Calcutta).	Wind Direction.	Wind Force.	Weather.
	° ′	° ′	″			
S.S. *Nadir* .	14 12	93 22	29·843	WNW	2	Slight sea; midnight squally.
S.S. *Vadala* .	15 56	93 48	·821	ESE	4	Continuous rain.
S.S. *Ikhona* .	16 22	85 54	·778	Calm.	0	Fine.
S.S. *Orissa* .	16 39	91 37	·794	SW	2	Heavy rain.
S.S. *Lawada* .	16 45	93 05	·850	SSE	4	Moderate sea and cloudy; 4 A.M. rainy.
S.S. *Canara* .	Cocanada.*		·838	...	...	4 A.M. cloudy.
S.S. *Purulia* .	17 03	93 15	·8_5	SE	4	Moderate head sea and dull, cloudy; 4 P.M. occasional squalls.
S.S. *Shahzada* .	17 48	92 41	·786	SW	2	Slight sea and cloudy; 8 P.M. rain squalls.
S.S. *Katoria* .	17 50	94 12	·858	ESE	5	Smooth sea and cloudy.
S.S. *Ranee* .	19 28	86 46*	·872	W	3	Cloudy. 4 A.M., lightning to N.
S.S. *Kapurthala*	20 16	92 26	·841	SE	5	Moderate sea and squally.
S.S. *Maharaja* .	River Hooghly		·814	...	...	4P.M. dull, cloudy.
F.L.V. *Torch* .	Ridge.		·902	NNE	3	Squally.
F.L.V. *Planet* .	Intermediate.		·923	NE	3	

* Noon position.

The winds were north-easterly at the Sandheads; westerly on board the *Ranee* in Lat. 19° 28′ N. and Long. 86° 46′ E.; south-westerly on board the *Orissa* in Lat. 16° 39′ N. and Long. 91° 37′ N., and the *Shahzada* in Lat. 17° 48′ N. and Long. 92° 41′ E., and south-easterly on board the *Kapurthala* in Lat. 20° 16′ N. and Long. 92° 26′ E. There was thus a very complete cyclonic circulation around a centre in about Lat. 18° 30′ N and Long. 90° E., but the force of the recorded winds was light or moderate. Heavy rain was reported on board the *Orissa*, and continuous rain on board the *Vadala*.

The following gives 8 A.M. data for the ports around the Bay :—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind Direction at 8 A.M.	Wind Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	″	″	″				Inches.	
Moulmein	29·927	+·016	+·091	W	3	4	1·52	
Rangoon .	·917	+·026	+·076	E	4	9	...	
Diamond Island.	·889	+·023	+·061	SSE	17	6	0·33	Showery.
Bassein .	29·909	+·030	+·092	SE	5	7	0·18	
Akyab .	·885	+·034	+·069	SE	4	10	0·41	
Chittagong.	·880	+·053	+·062	E	4	10	0·29	Showery.
Barisal .	·870	+·039	+·069	Calm	1	8	...	
Calcutta .	·873	—·002	+·084	NNW	4	2	...	
Saugor Island.	·861	—·001	+·081	NNW	7	5	...	Thunder.
Balasore .	·871	—·011	+·073	NNW	2	1		
False Point.	·868	—·006	+·090	NNW	4	5	...	
Cuttack .	·884	—·001	+·101	Calm	1	4	...	
Gopalpur	·880	0	+·090	NW	6	0	...	Sea smooth.
Waltair .	·890	—·001	+·092	SW	3	6	...	″
Cocanada	·894	—·001	+·098	NW	3	7	...	
Masulipatam.	·906	+·007	+·113	Calm	3	10	...	
Nellore .	·905	+·011	+·103	SSE	3	8	...	
Madras .	·902	+·004	+·081	SW	4	3	...	Sea smooth.

The barometer was falling on the Orissa and north Ganjam coasts, but was rising in Burma, showing that the depression was moving north-westward. Pressure remained in excess at all the Bay stations showing that the storm at this time was either concentrated and of small extent, or of small intensity.

October 3rd.—During the previous 24 hours the storm had apparently recurved and, after advancing north-westward into the centre of the north of the Bay, had recurved through north into north-east, and with this direction was advancing towards the east Bengal coast. The following gives marine data for this day :—

Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer (as corrected by Calcutta).	Wind Direction.	Wind Force.	Weather.
	° ′	° ′	″			
S.S. *Lawada* .	15 52	95 58	29·937	Calm	0	Fine.
S.S. *Purulia* .	16 12	96 04	·861	Var.	2	Sea smooth and fine.
S.S. *Maharani* .	Rangoon.		·949	...	...	
S.S. *Pundua* .	Do.		·950	...	...	Midnight hazy.
S.S. *Vadala* .	Do.		·913	SE	2	Fine.
S.S. *Nadir* .	16 55	91 31	...	S	3	Sea slight and cloudy; 4 A.M. squally with rain showers.
S.S. *Ranee* .	17 15	84 21	·879	SW	5	Fine.

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer (as corrected by Calcutta).	WIND Direction.	Force	WEATHER.
	° ′	° ′	″			
S.S. *Canara* .	Vizagapatam		29·855	...	..	4 A.M. cloudy.
S.S. *Katoria* .	19 00	93 44	·921	SE	..	Clear.
S.S. *Orissa* .	19 18	89 52	·857	SW by S	5	Moderate sea and heavy rain squalls.
S.S. *Kapurthala*	19 52	92 40	·880	SSE	6	Moderate sea and heavy rain.
S.S. *Shahzada* .	20 15	89 00	·773	NW by W	4	North-east swell and overcast; 4 A.M. occasional squalls.
S.S. *Maharaja* .	River Hooghly.		·819	NW	1	Moderate sea and cloudy; midnight light squalls.
F.L.V. *Torch* .	Ridge.		·907	N	5	Squally.
F.L.V. *Planet* .	Intermediate.		·891	N	5	

The wind was northerly and north-westerly at the Sandheads and on board the *Shahzada* in Lat. 20° 15′ N. and Long. 89° 0′ E., where the weather was squally and overcast. It was southerly on board the *Orissa* in Lat. 19° 18′ E. and Long. 89° 52′ N., and the *Nadir* in Lat. 16° 55′ N. and Long. 91° 31′ E.; on board the former vessel heavy rain squalls were reported. The wind was south-easterly on board the *Katoria* and the *Kapurthala* off Akyab, and was strong with heavy rain on the latter ship. The centre of the storm was hence probably in Lat. 21° 20′ N. and Long. 90° 10′ E., and about 100 miles to the south-south-west of Barisal.

The following gives 8 A.M. data for the ports around the north of the Bay:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	WIND Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	″	″	″				Inches.	
Diamond Island.	29·946	+·057	+·115	SE	15	4	...	
Bassein .	·960	+·051	+·138	SE	3	5	0·12	
Akyab .	·921	+·036	+·101	SE	5	10	3·20	
Chittagong	·858	—·022	+·036	ESE	4	10	1·41	Raining.
Barisal .	·783	—·087	—·022	ENE	3	10	0·40	Duststorm.
Jessore .	·878	—·002	+·076	Calm	1	10	0·28	Raining.
Calcutta .	·876	+·003	+·083	NNE	4	10	0·14	
Saugor Island.	·856	—·005	+·070	N	9	10	1·77	Sea slight.
Balasore .	·895	+·024	+·090	NNW	4	4	...	
False Point	·896	+·028	+·111	NW	7	8	...	
Cuttack .	·894	+·010	+·106	Calm	1	5	...	
Gopalpur .	·886	+·006	+·091	NNW	6	0	...	
Waltair .	·897	+·007	+·094	SW	7	4	...	Sea smooth.
Cocanada .	·900	+·006	+·100	NW	3	0	...	
Masulipatam	·919	+·013	+·123	Calm	3	1	...	

Pressure was falling briskly at Barisal and very slightly at the neighbouring stations, while it was rising over all other parts of the Bay area. The depression of the barometer at Barisal was only 0·022″ so that the storm was of very slight intensity, and at all the surrounding stations the pressure remained higher than usual.

October 4th.—The depression had passed inland and filled up and the winds were light and variable over the north of the Bay on this day.

The following gives 8 A.M. data for the ports around the north of the Bay:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	WIND Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	″	″	″				Inches.	
Diamond Island.	29·992	+·046	+·159	NNE	4	3	...	
Bassein .	·996	+·036	+·171	Calm	3	4	...	
Akyab .	·973	+·052	+·149	S	4	9	0·62	
Chittagong .	·967	+·109	+·143	SSE	13	8	2·65	Showery.
Barisal .	·923	+·140	+·114	Calm	8	2	1·10	Gale of wind.
Jessore .	·944	+·066	+·137	Calm	2	4	0·06	
Calcutta .	·950	+·074	+·152	ESE	3	6	0·03	
Saugor Island.	·941	+·085	+·148	SSW	7	9	0·20	Showery.
Balasore .	·931	+·036	+·120	SW	2	2	0·07	
False Point	·947	+·051	+·156	WSW	5	6	...	
Cuttack .	·950	+·056	+·156	Calm	1	2	...	
Gopalpur .	·941	+·055	+·142	N	8	0	...	
Waltair .	·947	+·050	+·141	SW	5	5	4	Sea smooth.

The preceding data show that the barometer had risen rapidly to briskly over the north of the Bay and that the storm had filled up. Pressure was largely above the normal over Bengal.

The reports of the 5th showed a slight to rapid fall of the barometer over North-West India and a well-defined but slight depression was shown lying over the south-west Punjab, around which the winds were circulating cyclonically. There was, however, no rainfall connected with the depression. The barometer was rising briskly to rapidly on the following day, the 6th, in the depression area, and the storm had become much slighter. It had, however, occasioned falls of rain at Rawalpindi, Chakrata, Murree and Srinagar. The depression continued with varying, though always slight, intensity until the 10th, after which date it finally disappeared. It was at no time of any importance.

During this period from the 5th to the 11th, pressure was low and the weather disturbed off the West Coast, but the unsettled conditions never seriously affected the West Coast stations.

On the 14th another low pressure area appeared over the North-West Dry area, and occasioned thundershowers and storms in parts of the north-west Himalayas.

Rain occurred over Afghanistan and Kashmir on the 16th, 17th and 18th, and in the Punjab and Rajputana on the 18th, and on the latter date a shallow depression was shown over the south Punjab and northern Rajputana, so that the storm had apparently advanced to that position from the westward. The depression apparently passed further to the eastward and filled up over the United Provinces during the 20th. It occasioned rain over the Himalayas and Sub-Himalayas on the 19th and 20th, when the falls were heavy at Bareilly, Umballa, Meerut, Mussooree and Chakrata.

October 21st.—On the 21st the weather became unsettled over the Bay. The following gives marine information for this day:—

NAME OF VESSEL OR STATION.	8 A.M. POSITION.		Barometer as corrected by Calcutta.	WIND		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Valetta* .	5 51	91 11	29·769	Var.	2	Fine. 8 P.M. showery.
S.S. *Hiroshima Maru.*	5 54	92 14	·817	WSW	3	Cloudy.
S.S. *Umzinto* .	5 56	80 39	·828	E	2	Sea smooth and fine. 4 P.M. cloudy.
S.S. *Drachenfels*	6 03	81 18	...	NE	3	
S.S. *Santhia* .	10 34	83 33	·854	ENE	2	Sea slight and cloudy. 8 P.M. occasional light rain.
S.S. *India* .	11 31	84 00	·877	NE	4	Rainy.
S.S. *City of Corinth.*	13 06	84 34	·884	NE	4	Moderate sea and passing rain squalls.
S.S. *Manica* .	14 02	85 02	·930	NE	4	Moderate sea and cloudy. 4 A.M. showery.
S.S. *Scindia* .	14 37	81 18	·871	NE	4	Moderate sea and fine.
S.S. *Oceano* .	15 36	86 2	...	NNE	5	Moderate head sea and cloudy.
S.S. *Madura* .	16 24	93 28	·895	N	2	Fine.
S.S. *Malda* .	16 48	93 08	·926	ESE	2	Sea smooth and fine. 4 A.M. cloudy.
S.S. *Venus* .	17 44	87 08	...	NE	4	Fine.
S.S. *Nam Sang*	18 49	89 52	·924	NNE	4	Sea slight and cloudy.
Port Blair .	...	...	·890	ESE	5	Cloudy.

The above shows that at Port Blair and on board the *Malda* in Lat. 16° 48′ N. and Long. 93° 08′ E. the wind was east-south-easterly, while all over the west of the Bay it was north-easterly with cloudy, rainy weather. There was thus probably an area of uniform and rather low pressure over the centre of the Bay with feebly disturbed weather.

October 22nd.—The following gives marine data for this day:—

NAME OF VESSEL OR STATION.	8 A.M. POSITION.		Barometer as corrected by Calcutta.	WIND		WEATHER.
	Lat. N.	Long E.		Direction.	Force.	
	° ′	° ′	″			
S S. *Valetta* .	5 44	85 39	29·796	W	2 to 3	Light rain. Midnight, rain squalls.
S.S *Hiroshima Maru.*	6 07	87 55	·827	SW	3	Cloudy.
S.S. *Santhia* .	7 34	82 22	·861	NNE	2	Cloudy. Noon, heavy showers of rain.
S.S. *Umzinto* .	8 46	82 52	·808	NNE	2	Sea smooth and fine. 4 P.M. overcast.
S.S. *Drachenfels*	9 43	81 37	·844	N	2	
S.S. *Vadala* .	14 57	94 44*	·862	Calm	0	Fine.
S.S. *India* .	15 03	85 27	·901	ENE	4	Moderate sea. N. E. swell and cloudy. 4 A.M. showery.
S.S. *Malda* .	Rangoon.*		·900	...	..	4 A.M. fine.
S.S. *Scindia* .	Coca nada.		·911	...	...	Ditto.
S.S. *City of Corinth.*	17 40	86 28	·934	NE	4	Sea slight and cloudy. 4 A.M. rain squalls.
S.S. *Manica* .	18 29	86 57	·960	NNE	2	Sea smooth and fine.
S.S. *Oceano* .	19 05	87 19	...	NE	4	Cloudy.
S.S. *Madura* .	19 54	89 34	·904	N	2	Sea smooth and fine.
S.S. *Canara* .	19 58	89 09	·891	E	1	Ditto.
S.S. *Shahsada* .	21 04	89 14	·888	NW	3	Sea slight and clear.
S.S. *Commilla* .	Elephant Point.		·883	Calm	0	Fine.
S.S. *Kistna* .	Saugor Island.		·921	Calm	0	Do.
Port Blair .	...	...	·913	SSE	9	Cloudy.

* Noon position.

The wind had shifted to south-south-east at Port Blair and increased slightly in force, while northerly winds prevailed over the west and westerly winds and rain over the south of the Bay. It is probable that on this day a small centre of depression had been developed over the centre of the Bay in about Lat. 12° N. and Long. 91° E. The barometer was rising slightly at Port Blair, but was falling around the coasts of the Bay.

October 23rd.—The barometer was generally falling over the Bay, but the wind had shifted to north-north-east at Port Blair and to east over the centre and west of the Bay, and the small depression had apparently filled up.

October 24th.—The following gives marine data for this day:—

NAME OF VESSEL OR STATION.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Calcutta.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *City of Delhi*	6 01	80 05	29·800	Var.	2	Rainy.
S.S. *Coromandel*	6 06	81 22	·879	W	3	Fine. 8 P.M. rainy.
S.S. *Hensada* .	9 44	80 59	·827	Var.	2	Slight swell and cloudy.
S.S. *Vadala* .	11 16	88 59	·837	SE	2	Sea smooth and fine. Midnight, slight rain squalls.
S.S *Dalmatia* .	12 02	84 15	·890	ESE	4	Sea smooth. Midnight, heavy rain squalls.
S.S. *Purnea* .	12 31	96 55	·933	NE	2	Fine.
S.S. *Canara* .	15 13	95 19	·886	E	2	Sea smooth and fine
S.S. *Umsinto* .	16 02	86 36	·814	NE	2	Fine.
S.S. *Goa* . .	16 03	97 18	·869	...	...	Noon clear.
S.S. *Maharani*.	Moulmein.*		·906	...	...	Clear
S.S. *Nawab* .	Cocanada.*		·895	WNW	2	Fine.
S.S. *Orissa* .	18 24	84 24	·949	NW	2	Do.
S.S. *Scindia* .	18 48	85 07	·936	NE	2	Do.
S.S. *Commilla* .	19 00	93 44	·892	NE	2	Sea smooth and fine.
Port Blair .	...	...	·919	ESE	2	Cloudy.
Negapatam .	...	...	·907	NE	5	Sea rough.
Colombo . .	...	...	·902	NNW	6	Sea slight.

* Noon position.

The preceding data show that the wind was east-south-easterly at Port Blair and on board the *Vadala* in Lat. 11° 16′ N. and Long. 88° 59′ E., and the *Dalmatia* in Lat. 12° 02′ N. and Long. 84° 15′ E., while it was north-easterly at Negapatam, north-north-westerly at Colombo, and westerly on board the *Coromandel* in Lat. 6° 6′ N. and Long. 81° 22′ E. The winds thus showed a cyclonic tendency over the extreme south of the Bay, although the barometer was generally rising. Heavy rain was falling over the south of the Peninsula.

October 25th.—The following gives marine information for this day:—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Calcutta.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *Rothenfels* .	6 23	81 41	29·894	N	3	
S.S. *City of Delhi*.	8 07	82 42	·800	N	2	Cloudy. Midnight, frequent squalls with rain.
S.S. *Vadala* .	9 20	86 0	·795	SE	2	Fine.
S.S. *Coromandel* .	10 20	83 44	·831	Var.	1	Showery. Midnight, heavy rain squalls.
S.S. *Hensada* .	Negapatam.		·827	...	...	8 P.M. fine.
S.S. *Nawab* .	14 43	81 19	29·855	E	3	Sea slight and fine.
S.S. *Orissa* . .	15 25	81 57	·889	SSE	2	Fine.
S.S. *Dalmatia* .	15 28	85 44	·890	E by N	4	Sea smooth and fine.
S.S. *Goa* . .	15 59	93 57	·822	Var.	2	Fine.
S.S. *Purnea*. .	Rangoon.*		·890	N	4	Do.
S.S. *Tara* . .	Rangoon.		·847	...	...	Noon fine.
S.S. *Kapurthala* .	Sandoway.		·884	...	...	8 P.M. cloudy.
S.S. *Umsinto* .	19 37	87 39	·860	NNE	2	Sea smooth and fine.
Port Blair . .	...	...	·895	NNW	6	Cloudy.

* Noon position.

The winds were very light and variable over the south of the Bay, and at Port Blair the direction had shifted to north-north-west. The barometer was falling all over the Bay, and the *Coromandel* in Lat. 10° 20′ N. and Long. 83° 44′ E. reported variable light airs, and at midnight heavy rain squalls. It is probable that a small depression commenced to form on that day in the neighbourhood of this vessel, but the winds were very light in the surrounding regions, and there was no direct evidence of the existence of a depression.

October 26th.—The following gives marine data for this day:—

NAME OF VESSEL OR STATION.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Calcutta.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *Vadala*. .	7 07	83 08	29·786	SW	2	Fine.
S.S. *Fortunatus* .	7 18	87 13	·814	NNW	2	Do.
S.S. *Rothenfels* .	8 26	85 04	·874	E	1 to 2	
S.S. *Bhundara* .	8 42	81 19*	·826	E	2	Light rain. 4 A.M. frequent rain squalls.
S.S. *City of Delhi*.	11 41	83 57	·750	ENE	4	Showery. Midnight, rain squalls.
S.S. *Hensada* .	Cuddalore.		·787	...	...	4 A.M. frequent heavy rain squalls.
S.S. *Orissa* . .	12 04	81 32	·835	ESE	2	Moderate sea and fine. Midnight showery.
S.S. *Tara* . .	12 52	96 55	·866	SE	2	Fine. 8 P.M. cloudy.
S.S. *Coromandel* .	15 09	85 48	·863	ENE	3	Cloudy.
S.S. *Kapurthala* .	15 55	96 10	·874	N by E	4	Sea smooth and cloudy.
S.S. *Dalmatia* .	18 58	87 18	·910	N by E	3	Sea smooth and fine. 8 P.M. cloudy.
Port Blair . .	...	...	·877	ESE	9	Cloudy.

* Noon position.

The above shows that light to moderate easterly winds were blowing over the south of the Bay and there was still no sign of a cyclonic circulation of the winds in this area.

The *City of Delhi* in Lat. 11° 41′ N. and Long. 83° 57′ E. reported showery and squally weather and there had also been rain at Port Blair, but there was practically no indication of cyclonic actions on this day.

October 27th.—The following gives marine data for this day:—

NAME OF VESSEL OR STATION.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Calcutta.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *Satara* .	4 20	83 02	29·787	NW	4	Heavy continuous rain.
S.S. *Bhundara* .	6 24	80 26	·794	NW	5	Moderate sea and fine. Noon occasional rain squalls.
S.S. *Vadala* .	6 36	80 14	·791	NW	4	Squally.
S.S. *Trentham Hall.*	7 10	82 23	...	N	2	Smooth sea and cloudy. Noon, heavy rain.
S.S. *Orissa* . .	8 23	81 46	·782	Calm	0	Light showers. Noon continuous rain squalls.
S.S. *Lai Sang* .	10 05	96 28	·884	NE	4	Slight sea and fine. 4 A.M. cloudy.
S.S. *Fortunatus* .	10 09	83 53	·794	NNE	2	Cloudy. Noon, heavy rain.
S.S. *Rothenfels* .	10 38	88 14	·874	SE	4 to 6	
S.S. *City of Delhi*	14 43	85 20	·790	NE	4	Occasional rain and wind squalls.
S.S. *Clan Fraser* .	15 16	82 35	·884	ENE	6	Moderate sea and threatening. 4 A.M. violent rain squalls.
S.S. *Shahjehan* .	15 59	92 0	·912	E	4	Moderate sea and fine.
S.S. *Canara* .	Rangoon.		·879	...	...	Noon cloudy.
S.S. *Malda*. .	Rangoon.		·917	...	...	4 P.M. fine.
S.S. *Maharaja* .	18 46	92 39	·868	ESE	2	Slight sea and fine.
S.S. *Nadir* . .	19 7	89 27	·934	E by N	3	Slight sea and fine. 8 P.M. light rain squalls.
S.S. *Coromandel* .	19 59	87 43	·950	NE	4	Overcast.
Port Blair . .	...	...	·881	ESE	14	Cloudy.

On this morning the unsettled conditions over the south of the Bay had apparently crystallised into a cyclonic storm. The east-south-east wind at Port Blair had increased and a strong south-east wind was reported on board the *Rothenfels* in Lat. 10° 38′ N. and Long. 88° 14′ E., while the *Fortunatus*, in Lat. 10° 9′ N. and Long. 83° 53′ E. reported a north-north-east wind at 8 A.M., and heavy rain at noon. The *Trentham Hall*, in Lat. 7° 10′ N. and Long. 82° 23′ E. reported a light north wind at 8 A.M. with heavy rain at noon, and the *Satara*, in Lat. 4° 20′ N. and Long. 83° 2′ E., a moderate north-west wind and heavy continuous rain. The centre of the disturbance was hence apparently in Lat. 9° N. and Long. 86° E. The barometer was falling slowly all over the Bay.

October 28th.—The following gives marine data for

NAME OF VESSEL OR STATION.	8A M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Calcutta.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *Clan Lindsay.*	6 48	82 8	29·945	S	4	Moderate sea and cloudy.
S.S. *Itaura* .	6 49	82 1	·771	SW by S	4	Fine. 8 P.M. overcast.
S.S. *Trentham Hall.*	10 50	83 56	...	Var.	4	Heavy rain.
S.S. *Fortunatus*	12 43	80 50	...	NE	5	Heavy rain.
S.S. *Mascotte* .	12 44	81 01	·679	NNW	2	Cloudy. Midnight, rain squalls.
S.S. *Henzada*	Madras		·697	...	...	Frequent hard squalls.
S.S. *Rothenfels*	13 8	91 7	·934	E	4 to 5	
S.S. *Drachenfels*	14 55	82 22	·764	NE	8	
S.S. *Nadir* .	16 8	91 45	·908	E	3	Moderate sea and fine.
S.S. *City of Delhi*	17 15	87 06	·860	E	4	Confused sea and heavy rain squalls.
S.S. *Clan Fraser*	18 09	85 36	·984	ENE	6	Moderate sea and frequent squalls, 4 A.M. continuous rain squalls of terrific force.
S.S. *Madura* .	18 11	91 12	·893	E	2	Sea smooth and fine.
S.S. *Kangra* .	19 25	88 08*	·929	NE	4	Moderate sea and dull. Noon, squally.
Port Blair .	...	...	·902	ESE	12	Cloudy.

* Noon position.

The storm had advanced quickly in a north-westerly direction and lay close to Madras. The preceding data show that there were no ships in the south-east of the Bay except the *Trentham Hall* which reported moderate variable winds and heavy rain, but to the north of the storm there were the *Fortunatus* and the *Drachenfels* with north-east winds strong to a gale in force and heavy rain. East to north-east winds, with fine to rainy weather, prevailed over the northern half of the Bay.

The following gives 8 A.M. data for the Madras coast stations:—

STATION.	PRESSURE. 8 A.M., reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	WIND Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	″	″	″				Inches	
Negapatam .	29·783	—·032	—·076	W	3	10	1·78	
Cuddalore .	·775	—·051	—·083	W	2	10	1·88	Drizzling.
Madras .	·730	—·123	—·140	ENE	8	10	9·16	Sea rough.
Nellore .	·810	—·056	—·055	ENE	5	10	3·30	Raining.
Masulipatam	·873	—·018	+·001	NNE	13	10	0·60	Drizzling.
Cocanada .	·881	—·010	+·007	NE	25	10	0·80	Sea rough.
Waltair .	·939	+·018	+·054	NE	22	10	1·84	Sea slight.

The above shows that the barometer had fallen rapidly at Madras and briskly at Cuddalore and Nellore. The pressure was 0·14″ below the normal at Madras, but the east-north-east wind was only light in force. Strong north-east winds prevailed, however, at Waltair, Cocanada, Masulipatam and Nellore, and rain had fallen all over the south of the Peninsula. The following gives some of the larger amounts:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 28th October 1902.
		Inches.
Chingleput	Vadasemmanjeri	10·70
	Saidapet	10·10
	Chingleput	9·98
	Kovelong	9·43
	Poonamallee	8·20
	Attipat	7·85
Nellore	Kavali	7·49
Chingleput	Kattur	7·14
Nellore	Rapur	6·45
Chingleput	Sathiavedu	6·30
	Ponneri	6·18
	Tiruvallur	5·87
Nellore	Gudur	5·66
	Tada	5·58
	Atmakur	5·29
Chingleput	Sriperumbudur	5·15
Nellore	Kota	5·03

October 29th.—The following gives marine data for this day:—

Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer as corrected by Calcutta.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	″			
S.S. *Nizam*	7 12	81 59	29·777	W by N	3	Moderate sea and fine. 4 P.M. frequent light showers.
S.S. *Chanda*	7 55	81 38*	·844	S	2	Slight swell and fine. 8 P.M. occasional rain.
S.S. *Itaura*	10 31	83 51	·769	S	2	South-east swell and cloudy.
S.S. *Clan Lindsay.*	10 34	81 33	·955	SW	5	Moderate sea and cloudy. Midnight, heavy rain squalls.

* Noon position.

Name of Vessel.	8 A.M. Position. Lat. N.	8 A.M. Position. Long. E.	Barometer as corrected by Calcutta.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	″			
S.S. *Nadir*	13 18	93 15	29·848	NE	3	Moderate sea and fine. 8 P.M. light constant rain.
S.S. *Mascotte*	14 28	83 05	·809	SSE	6	Moderate sea and rainy.
S.S *Rothenfels.*	14 48	94 22	·924	NE	3	
S.S. *Trentham Hall*	15 3	85 38	...	ESE	5	Rough sea and cloudy.
S.S. *Henzada*	15 14	81 16	·767	E	5	Heavy sea and dull overcast, 4 A.M. heavy rain squalls.
S.S. *Madura*	15 18	95 1	·839	NE byE	2	Fine.
S.S. *Kapurthala*	Rangoon River.		·890	NE	4	Do.
S.S. *Maharaja*	Rangoon.		·929	...	...	4 A.M, fine.
S.S. *Drachenfels*	17 28	85 11	·874	NE byE	6	
S.S. *Kangra*	Bimlipatam.		·828	NE	6	Dull.
S.S. *Lai Sang*	18 01	90 34	·904	NE	4	Moderate sea and fine. 4 A.M. cloudy.
S.S. *Katoria*	19 28	89 47	·897	E	2	Southerly swell and cloudy.
S.S. *Malda*	19 37	89 42	·916	NNE	4	Slight sea and fine.

There was not much information for the south-east of the Bay, but the *Itaura* and the *Clan Lindsay* reported south-west to south winds and the *Mascotte*, the *Henzada* and the *Trentham Hall* south-easterly to easterly winds with some rain. Over the north of the Bay the wind was north-easterly.

The following gives 8 A.M. data for the Madras coast stations:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	″	″	″				Inches.	
Negapatam.	29·783	0	—·076	S	8	8	0·03	
Cuddalore	·774	—·001	—·086	SSW	3	9	0·07	
Madras	·750	+·020	—·121	SSW	7	7	1·01	Sea slight.
Nellore	·758	—·052	—·108	Calm.	6	10	3·55	Continuous rain.
Masulipatam.	·833	—·040	—·041	Calm.	15	10	9·50	Ditto.
Cocanada	·885	+·004	+·009	NE	35	10	5·06	Sea very rough.
Waltair	·945	+·006	+·056	NE	21	10	3·93	Sea slight.

The depression had continued to travel in a north-westerly direction and the centre lay between Madras and Cuddapah. The strongest winds were the north-east winds to the north of the storm.

October 30th.—The observations over the Bay were of no importance, light easterly and south-easterly winds prevailing generally with fine to squally weather.

The following gives 8 A.M. data for the storm area :—

STATION.	PRESSURE.			WIND		CLOUD.	RAINFALL.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Negapatam	29·795	+·012	—·065	Calm.	10	3	0·02	
Cuddalore .	·779	+ 005	—·083	SSW	2	10	...	
Madras .	·797	+·047	—·075	SE	9	10	1·13	Sea slight.
Nellore .	·779	+·021	—·089	S	5	10	1·24	Continuous rain.
Masulipatam	·824	—·009	—·052	ESE	10	10	5·00	Ditto.
Cocanada .	·893	+·008	+·015	N	28	10	6·40	Sea rough.
Kurnool .	·787	—·039	—·112	ENE	4	10	0·13	Drizzling.
Cuddapah .	·764	+·012	—·122	SE	...	10	0·32	Ditto.
Bellary .	·798	—·051	—·112	NNW	8	10	0·83	
Raichur .	·806	—·070	—·102	ENE	15	9	0·85	Showery.
Salem .	·823	0	—·087	SW	2	8	0·71	
Bangalore .	·809	—·004	—·101	WSW	11	10	0·35	

The preceding data show that the storm had not changed its position much, but was drifting very slowly north-westward. The winds were irregularly cyclonic around the storm and heavy rain had continued to fall over parts of the Peninsula.

October 31st.—The barometer had risen slightly to briskly over the south of the Peninsula and the storm had practically filled up. Rain, however, continued over the Peninsula and the central parts of the country.

Two cyclonic storms were also experienced in the Arabian Sea during the month of October 1902, of which only faint indications were observable along the West Coast of India.

On the 8th and 9th the barometer was falling briskly to rapidly over western India, and pressure was low off the Malabar and south Konkan coasts with easterly winds and rain.

October 10th.—On the 10th pressure was recovering over this region, but the easterly winds and rain along the West Coast and the area of relatively low pressure off the coast, continued to be shown. On this day the marine information was extremely scanty, but abnormal northerly winds were reported on board the *Peninsular* in Lat. 17°12′ N. and Long. 66° 7′ E. and the *City of Khios* in Lat. 10°4′ N. and Long. 66° 9′ E., while the latter vessel reported a moderate confused swell. The weather was fine in both positions. The following gives marine data for the east of the Arabian Sea for this day :—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer as corrected by Bombay Office.	WIND		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	"			
S.S. *Clan Fraser*	7 40	74 47	29·904	Var.	1	
S.S. *City of Khios.*	10 04	66 09	·886	N	4	Moderate confused swell and fine
S.S. *Massilia* .	11 15	75 28	·832	Var.	4 to 5	Heavy rain. Noon, heavy rain squalls.
S.S. *Peninsular*	17 12	66 07	·837	N	3 to 4	Fine.
S.S. *Lake Manitoba.*	Bombay.*		·855	N	2	Fine.
S.S. *Simla* .	21 01	70 11	·915	NW by N	2	Sea slight and fine
S.S. *Dwarka* .	21 44	69 21*	·892	SW	2	Midnight fine.
S.S. *Hardwick Hall.*	21 50	68 27	781	SE	4	Fine.
S.S. *Bombay* .	24 05	65 38	...	W	4	Fine.
S.S. *King Arthur*	24 45	57 58	·905	Var.	2	Sea smooth and fine.
S.S. *Khandala* .	26 12	56 50*	...	W	2	Fine.

* Noon position.

The preceding data show that an area of relatively low pressure covered the east of the Arabian Sea occasioning northerly winds and fine weather in Long. 66° E., while the *Massilia* to the south-east of the area experienced variable fresh winds and heavy rain.

October 11th.—On the 11th pressure was still increasing along the West Coast of India, where the winds were south-easterly and rain continued. The following gives marine data for this day :—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer as corrected by Bombay Office.	WIND		WEATHER.
	Lat. N.	Long E.		Direction.	Force.	
	° ′	° ′	"			
S.S. *Khalif* .	11 11	59 32	29·846	NE	3	Cloudy.
S.S. *Workman* .	11 13	56 47	"	Var.	1	Fine.
S.S. *Bengal* .	11 23	75 30	·863	SSE	3	Rainy.
S.S. *Rheinfels* .	12 37	58 27	·919	NE	1 to 2	
S.S. *Warora* .	13 27	62 15	·941	ESE	5	Rough sea and cloudy. Noon, rain squalls.
S.S. *Colenso* .	15 45	59 38	...	NE	1	
S.S. *Britannia* .	16 45	61 22	·927	NNE	3 to 4	Fine.
S.S. *Hardwick Hall.*	17 55	70 44	·911	SE	2	Dull cloudy, midnight, heavy squalls of rain.
S.S. *Dwarka* .	Bombay.*		·872	E by N	2	4 A.M. lightning to south-west.
S.S. *Peninsular*	Bombay.		·829	N	3	Overcast.
S.S. *Indi* .	Bombay.		·961	...	...	8 P.M. constant light rain.

* Noon position.

On this day the winds were light and variable, but exhibited an irregular cyclonic circulation around a centre in about Lat. 14° 10′N. and Long. 67°0′. E. The *Warora* in

Lat. 13° 27′ N. and Long. 62° 15′ E. reported a rough sea and rain squalls later in the day, but elsewhere the weather was generally fine except close to the west coast of India. The wind direction on board the *Warora* was probably incorrect.

October 12th.—The barometer had risen briskly along the west coast, but rain continued to fall there and pressure was relatively low compared with other parts of India. The following gives marine data for this day :—

Name of Vessel.	8 A.M. Position.		Barometer as corrected by Bombay Office.	Wind		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Workman* .	10 20	61 33	...	NNW	4	Slight cross swell and cloudy. Noon showery.
S.S. *Warora* .	10 26	63 19	29·910	E	5	Rough sea. 4 P.M. overcast.
S.S. *Rheinfels* .	11 44	62 11	·909	N	4	
S.S. *Khalif* .	11 57	62 42	·777	NW	4	Cloudy. 4 P.M. showery.
S.S. *Hardwick Hall.*	14 43	72 45	·850	SE	6	Dull cloudy. 4 A.M. heavy squalls.
S.S. *Vindobona* .	15 10	56 32	·858	NE	3	...
S.S. *Chindwara* .	16 07	73 21	·955	SSW	2	Moderate swell and fine.
S.S. *Bengal* .	16 10	73 25	·844	SE	2	8 P.M. heavy rain.
S.S. *Colenso* .	16 37	62 46	...	NNE	5	Cloudy. 4 P.M. squally.
S.S. *India* . .	16 46	73 07	·969	SE	4	High southerly swell and cloudy.
S.S. *Henzada* .	17 17	72 57	·907	S by E	4	Moderate sea. 4 A.M. light showers.
S.S. *Britannia* .	17 35	65 10	·864	ENE	5	Rough sea and rain squalls.
S.S. *Oriental* .	17 49	67 29*	·846	ESE	5	Slight south-east swell and overcast
S.S. *City of Delhi*	Near Bombay.		·900	...	...	Midnight, showery.

* Noon position.

The depression was now better defined and the centre apparently lay in about Lat. 14° 10′ N. and Long. 66° 10′ E. It had thus moved westward which would account for the barometric recovery along the west coast. The winds had freshened somewhat over the Arabian Sea and averaged 3·3 for the whole sea, which was 0·6 above the normal of the month. They exhibited a well-marked cyclonic circulation over the centre and east of the sea and were fresh to strong in force on boards the *Britannia*, Lat. 17° 35′ N. and Long. 65° 10 E′., the *Warora*, Lat 10° 26′ N. and Long. 63° 19′ E., the *Colenso*, Lat. 16° 37′ N. and Long. 62° 4 ′ E., the *Oriental*, Lat. 17° 49′ N. and Long. 67° 29′ E., and the *Hardwick Hall*, Lat. 14° 43′ N. and Long. 72° 45′ E. The wind direction reported on board the *Warora* appeared again incorrect. The weather at 8 A.M. was showery but still moderately fine generally, but later in the day rain increased and the weather became very squally.

October 13th.—The depression had ceased to affect the pressure changes along the west coast, as the storm had continued to progress westward. The following gives marine data for this day :—

Name of Vessel.	8 A.M. Position.		Barometer as corrected by Bombay Office.	Wind		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Workman* .	9 20	66 17	...	SW	2	Moderate sea and showery.
S.S. *Rheinfels* .	10 47	65 41	29·839	SW	5	
S.S. *Khalif* .	12 48	65 41	·728	WNW	4 to 5	Showery.
S.S. *India* . .	13 41	74 24	·875	Var.	2	Moderate S.S.W. swell and heav. rain squalls.
S.S. *Henzada* .	14 51	73 48	·857	SE	4	Moderate sea and fine
S.S. *Kohinur* .	15 24	73 41*	·944	Var.	1 to 2	Fine, 4 A.M. heavy rain.
S.S. *Vindobona* .	16 11	60 37	·779	NE	5	8 P.M. showery.
S.S. *Oriental* .	16 51	62 22	·842	NE by E.	4	Squally with rain.
S.S. *Colenso* .	17 10	64 59	...	ENE	6	Moderate sea and cloudy. 4 A.M. heavy squalls.
S.S. *Britannia* .	17 47	68 34	·870	E by N	4 to 5	3·30 P.M. fierce squalls and continuous heavy rain.

* Noon position.

The information for this day was scanty and the position of the centre of the depression was ill defined. It probably, however, lay in about Lat. 14° 10′ N. and Long. 65° 30′ E. The vessels nearest to the storm area were the *Britannia*, Lat. 17° 47′ N. and Long. 68° 34′ E., the *Colenso*, Lat. 17° 10′ N. and Long. 64° 59′ E., and the *Oriental* Lat. 16° 51′ N. and Long. 62° 22′ E. to the north of the centre, with north-east winds and squally rainy weather, and the *Khalif*, Lat. 12° 48′ N. and Long. 65° 41′ E., the *Rheinfels* in Lat. 10° 47′ N. and Long. 65° 41′ E. to the south of the centre with west-north-west to south-west winds and showery weather. The general force of the wind for the whole sea was again 3·3.

October 14th.—The storm had again moved slowly westward or west-north-westward and the centre, so far as could be judged, lay in Lat. 14° 50′ N. and Long. 65° 0′ E. The following gives marine data for this day :—

Name of Vessel.	8 A.M. Position.		Barometer a corrected by Bombay Office.	Wind		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Rheinfels* .	9 33	69 6	29·889	SW	4 to 5	
S.S. *Drachenfels* .	10 14	59 56	·844	W	3	
S.S. *Henzada* .	Mangalore.		·827	...	...	4 A.M. frequent heavy squalls of wind and rain.
S.S. *Khalif* . .	14 20	68 34	·649	SSE	5 to 6	High confused sea and showery.
S.S. *Nuddea* .	14 26	73 57	·923	ESE	4	Fine.
S.S. *Itaura* .	16 11	73 23	·869	ENE	4	Smooth sea and fine.
H.M.S. *Perseus* .	17 16	58 26	·935	ENE	1	East swell.
S.S. *Vindobona* .	17 16	64 10	·671	NE	7	Heavy rain.
S.S. *Colenso* .	17 51	67 04	...	ENE	6	Heavy irregular sea and overcast; noon frequent squalls.
S.S. *Britannia* .	Bombay.*		·862	E	4	Slight sea.

* Noon position.

The storm was now affecting the winds over practically the whole of the Arabian Sea.

The vessels nearest to the centre were the *Vindobona*, Lat. 17° 16′ N. and Long. 64°10′, E. and the *Colenso*, Lat. 17°51′ N. and Long. 67°4′ E., to the north of the storm with north east-winds strong to a moderate gale in force and heavy rain and heavy sea, and the *Khalif*, Lat. 14°20′ N. and Long. 68° 34′ E. to the east of the storm with a strong south-south-east wind, a high confused sea and showery weather.

October 15th.—The winds were very irregular on this day and the storm area very ill defined. The following gives marine data :—

NAME OF VESSEL.	8 A.M. POSITION		Barometer, as corrected by Bombay Office.	WIND		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S. S. *City of Corinth.*	10 16	59 40	29·844	W	1	Confused swell and fine.
S. S. *Ockenfels*	14 51	58 07	·761	NE	2 to 3	High NE swell ; 8 P.M, rain squalls.
S. S. *Rasmora* .	15 17	73 35	·840	ENE	2	Fine.
S. S. *Khalif* .	15 17	71 44	·821	SSE	6	Overcast.
S. S. *Nevasa* .	15 29	58 22	·767	N	2 to 4	Moderate sea; Midnight, heavy squalls of rain.
S. S. *Arabia* .	15 57	60 59	·605	NE	4 to 5	Fine. 4 P.M. frequent hard squalls of wind and rain.
S. S. *Islanda* .	16 05	73 21	·896	SW	2	Slight SW swell and fine.
H. M. S. *Perseus.*	17 42	62 54	·854	NE	5	Rough NE sea and squally.
S. S. *Vindobona* .	17 56	67 38	·701	SSW	6	Heavy rain.
S. S. *Colenso* .	18 31	69 44		ESE	6	Less sea. Noon, squally.
S. S. *Nuddea* .	Bombay.		·896	E	2	Fine.
S. S. *Rajputana* .	19 54	71 15*	·805	E	2	Do.

* Noon position.

The wind direction on board the *Vindobona* in Lat. 17° 56′ N. and Long. 67° 38′ E. appeared very doubtful. Heavy rain was reported on board this vessel. The *Perseus* and the *Arabia* to the north-west of the storm reported fresh north-east winds and frequent squalls. So far as can be judged from the insufficient data available, the centre on this day lay in about Lat. 15° 30′ N. and Long. 64° 0′ E.

October 16th.—The storm had intensified very rapidly, and as there were several vessels in the immediate neighbourhood of the storm centre, the position could be defined fairly accurately. It lay apparently in Lat. 15° 50′ N. and Long. 61° 0′ E., having again progressed almost due westward. The following gives marine data for this day:—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer, as corrected by Bombay Office.	WIND.		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ″	″			
S.S. *City of Corinth.*	9 12	64 29	29·864	SW	2	Confused swell and fine.
S.S. *Dalmatia* .	11 39	59 21	·810	W	2	Moderate NE swell and fine. Noon, cloudy.
S.S. *Ahmadi* .	14 26	53 38	·775	N	2	Fine. 4 A.M. very heavy dew.
S.S. *Imperatrix* .	15 08	57 01	·776	N	4	Passing rain squalls. Noon, heavy rain squalls.
S.S. *Okenfels* .	15 09	60 10	·361	NNW	11	High wild sea and heavy squalls of rain.
S.S. *Nevasa* .	15 17	60 58	·387	NW by W	9	Heavy sea with heavy easterly swell and moderate rain squalls. 4 P.M., heavy rain squalls.
S.S. *Haidari* .	15 42	58 27	·695	NNE	5	Rain squalls, 4 P.M. terrific squalls of wind and rain.
S.S. *Arabia* .	17 41	66 26	·750	ESE	5	4 A.M. overcast.
H.M.S. *Perseus* .	18 15	66 11	·871	ESE	3 to 4	Heavy easterly swell, 4 A.M. squally.

The vessels nearest the centre were the *Nevasa*, Lat. 15° 17′ N. and Long. 60° 58′ E., with a hard north-west by west gale and rain squalls, the *Okenfels*, Lat. 15° 9′ N. and Long. 60° 10′ E with a north-north-west hurricane and heavy rain squalls, and the *Haidari*, Lat. 15° 42′ N. and Long. 58° 27 E. with a fresh north-north-east wind and terrific squalls in the afternoon. Outside the inner storm area the winds were generally light and the weather fair. On board the *Nevasa* the barometer was lowest at noon, 16th, when it marked 29·327 inches, which reading was 0·450″ lower than at noon on the 15th. On board the *Okenfels* the lowest pressures were reported at 0-30 P.M. on the 16th, when, with a wind from west-south-west, of force 12, the barometer fell to 28·601″, which was 1·160″ lower than the reading at noon on the 15th. The following table gives the pressure and wind observations recorded on this day on this vessel :—

Hour.	NAME OF VESSEL.	POSITION.		Barometer, as corrected by Bombay Office.	WIND		WEATHER.
		Lat. N.	Long. E.		Direction.	Force.	
		° ′	° ′	″			
16th 7 A.M. .	S. S. *Okenfels*	...	...	29·391	NNW	11	High wild sea and heavy squalls of rain.
8 ,, .	,, .	15 09	60 10	·361	NNW	11	Ditto.
9 ,, .	,, .	...	...	·301	...	...	Ditto.
10 ,, .	,, .	...	...	·221	NNW	12	Ditto.
11- 5 A.M.	,, .	...	...	28·991	NW by N	12	Ditto.
11-25 ,,	,, .	...	...	·861	...	...	Ditto.
11-35 ,,	,, .	...	...	·761	...	...	Ditto.

Hour.	Name of Vessel.	Position. Lat. N.	Position. Long. E.	Barometer as corrected by Bombay Office.	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′	″			
11-50 A.M.	S.S. *Okenfels*	...	...	28·711	...	...	High wild sea and heavy squalls of rain.
0- 5 P.M.	,,	15 10	60 27	·671	WSW	12	Ditto.
0-20 ,,	,,	...	...	·611	...	...	Ditto.
0-30 ,,	,,	...	...	·601	WSW	12	Ditto.
1-0 ,,	,,	...	...	·661	...	...	Ditto.
1-40 ,,	,,	...	...	·711	...	...	Ditto.
2-40 ,,	,,	...	...	·801	...	...	Ditto.
4-0 ,,	,,	...	...	·881	SW by W	11 to 12	Ditto.
6-0 ,,	,,	...	...	29·111	SSW	10	Ditto.
7-30 ,,	,,	...	...	·201	SSW	9	Ditto.
9-30 ,,	,,	...	...	·321	S	9	Ditto.
Midnight	,,	...	...	·391	S	11 to 9	Ditto., and sea going down and sky clearing.

On board the *Imperatrix*, in Lat. 15° 8′ N. and Long. 57° 1′ E., at 8 A.M. the wind was moderate from north with passing grain squalls. The storm advanced towards the vessel and the lowest pressures were recorded at 10 P.M. on the 16th when the barometer marked 29·301″, which was 0·475″ lower than at 8 P.M. on the previous day. The following gives details of the pressures recorded and the winds experienced on board this vessel between 8 A.M. on the 16th and 8 A.M. on the 17th :—

Hour.	Name of Vessel.	Position. Lat. N.	Position. Long. E.	Uncorrected barometer.	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′	″			
16th 8 A.M.	S.S. *Imperatrix*	15 08	57 01	29·776	N	4	Passing rain squalls.
Noon	,,	15 19	57 54	·693	N	4	Heavy sea and heavy rain squalls.
1 P.M.	,,	...	...	·673	...	...	
2 ,,	,,	...	...	·634	NNE	...	
3 ,,	,,	...	...	·606	...	...	
4 ,,	,,	...	...	·574	N	5 to 6	Heavy rain and heavy squalls of hurricane force.
5 ,,	,,	...	...	·499	...	...	
6 ,,	,,	...	...	·460	N	8	
7 ,,	,,	...	...	·420	...	...	
8 ,,	,,	...	...	·381	NW	9 to 11	Heavy rain and heavy squalls of hurricane force.
9 ,,	,,	...	...	·341	...	...	
10 ,,	,,	...	...	·301	NW	10	

Hour.	Name of Vessel.	Position. Lat. N.	Position. Long. E.	Uncorrected Barometer.	Wind. Direction.	Wind. Force.	Weather.
		° ′	° ′	″			
11 P.M.	S.S. *Imperatrix*	...	...	29·341	W	10	
Midnight	,,	...	...	·410	WSW	10	Sea coming from all sides.
17th. 1 A.M.	,,	...	...	·550	...	...	
2 ,,	,,	...	...	·509	...	...	
3 ,,	,,	...	...	·509	SW	...	
4 ,,	,,	...	...	·540	S	12	Very high sea and heavy rain squalls.
5 ,,	,,	...	...	·619	...	...	
6 ,,	,,	...	...	·639	...	...	
7 ,,	,,	...	...	·737	...	...	
8 ,,	,,	15 19	60 57	·776	S	12 to 8	Very high sea and heavy rain squalls.

On board the *Haidari* the storm centre was encountered on the evening of the 16th, the lowest pressures having been recorded at 9 and 10 P.M. on the 16th. At these hours the barometer read 29·255″ with a west-north-west hurricane. The following gives details of the pressures and winds observed on the *Haidari* between 8 A.M. on the 16th and 8 A.M. on the 17th :—

Hour.	Name of Vessel.	Position. Lat. N.	Position. Long. E.	Barometer as corrected by Bombay Office.	Wind. Direction.	Wind. Force.	Weather.
		° ′	°	″			
16th 8 A.M.	S.S. *Haidari*	15 42	58 27	29·695	NNE	5	High sea and rain squalls.
10 A.M.	,,	...	...	·575	...	...	
Noon	,,	15 49	58 58	·615	NNE	6 to 7	Very confused sea and light rain.
4 P.M.	,,	...	...	·455	NNW	10 to 11	Terrific squalls of wind and rain.
5 ,,	,,	...	...	·435	NNW	...	Ditto.
6 ,,	,,	...	...	·375	NNW	...	Ditto.
7 ,,	,,	...	...	·375	NNW	...	Ditto.
8 ,,	,,	...	...	·315	WNW	11	Ditto.
9 ,,	,,	...	...	·255	WNW	...	Ditto.
10 ,,	,,	...	...	·255	WNW	...	Ditto.
11 ,,	,,	...	...	·265	WNW	...	Ditto.
Midnight 17th	,,	...	...	·285	WNW	11	Ditto.
2 A.M.	,,	...	...	·355	...	...	
3 ,,	,,	...	...	·385	...	...	
4 ,,	,,	...	...	·435	Var.	1 to 9	Fearful sea and heavy rain squalls.
6 ,,	,,	...	...	·455	...	...	
8 ,,	,,	15 53	60 22	29·515	S	8 to 7	Terrific sea.

October 17th.—The storm had advanced north-westward during the preceding 24 hours and the centre lay in about Lat. 16° 30′ N. and Long. 59° 0′ E. The following gives marine data for this day:—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer as corrected by Bombay Office.	WIND Direction.	WIND Force.	WEATHER.
	° ′	° ′	″			
S.S. *Dalmatia* .	10 38	62 56	29·900	S	2	Smooth sea and cloudy.
S.S. *Coromandel*	11 36	53 57	·761	S	2	Fine.
S.S. *Clan Lindsay.*	12 07	50 22	·915	Calm	0	Fine.
S.S. *Rothenfels*	12 57	51 28	·914	E	1	
S.S. *Ahmadi* .	15 06	57 14	·595	NW	4 to 5	Strong cross sea and showery. 4 P.M. heavy rain.
S.S. *Imperatrix*	15 19	60 57	·776	S	12 to 8	Very high sea and heavy rain squalls.
S.S. *Nevasa*	15 46	64 18	·846	SE by S	4 to 5	Moderate sea and cloudy.
S.S. *Haidari* .	15 53	60 22	·515	S	8 to 7	Terrific sea. Noon, heavy squalls of wind and rain.
S.S. *Okenfels* .	15 54	61 12	·541	SE	8 to 7	4 A.M. rain squalls and lightning to south-west.
H. M. S. *Perseus*	18 36	69 24	·979	E by N	2	Slight southerly swell. 4 A.M. overcast.

The inner storm area was again very sharply defined severe gales prevailing close to the centre, while immediately outside the winds were light and the directions variable. The vessels within the inner storm area were the *Okenfels*, Lat. 15° 54′ N. and Long. 61° 12′ E., with a south-east fresh gale, squalls of rain and lightning; the *Imperatrix*, Lat. 15° 19′ N. and Long. 60° 57′ E., with a southerly hurricane, heavy rain squalls and very high sea, and the *Haidari*, Lat. 15° 53′ N. and Long. 60° 22′ E., with a southerly fresh gale and terrific seas.

After 8 A.M. on the 17th the storm appears to have increased its rate of advance and would seem to have struck the Arabian coast near the Kurea Murea Islands during the night of the 17th, as on the morning of the 18th only light south-east winds were reported over the west of the Arabian Sea.

October 28th.—On the 28th the second storm over the Arabian Sea made its appearance. Moderate to fresh north-east winds were blowing between Longs. 56° E. and 64° E. along Lat. 16° N., while on board the *Matiana*, Lat. 9° 29′ N. and Long. 64° 59′ E., there was a strong south-south-west wind and frequent hard squalls of wind and rain. The storm developed between these limits, and the centre was apparently in about Lat. 9° 40′ N. and Long. 63° E. at 8 A.M. on the 28th. The following gives marine data for this day:—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer as corrected by Bombay Office.	WIND Direction.	WIND Force.	WEATHER.
	° ′	° ′	″			
S.S. *Sultan* .	7 35	53 23	29·829	NNE	6	Heavy sea and fine.
S.S. *Matiana* .	9 29	64 59	·665	SSW	6	High sea and frequent hard squalls of wind and rain.
S.S. *City of Venice.*	12 47	50 52	·935	NE	4	Moderate sea. 4 P.M. cloudy.
S.S. *Thorndale* .	14 17	51 08	·745	NE	2	Fine.
S.S. *Persia* .	14 50	54 37	·885	NEby N	3 to 4	Cloudy, Midnight, squally.
S.S. *St. Irene* .	14 59	55 47	·830	NE	5	Moderate sea and fine.
S.S. *Oriental* .	15 14	56 49	·842	NE	3	Fine.
S.S. *Massilia* .	16 27	61 55	·835	NE	5	Cloudy. 4 P.M. vivid lightning.
S.S. *Steinburger*	16 28	60 38	·763	NE by E	5	4 P.M. cloudy.

The only important observation was thus the strong south-south-west wind and squalls of wind and rain on board the *Matiana*.

October 29th.—The following gives marine data for this day:—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer as corrected by Bombay Office.	WIND Direction.	WIND Force.	WEATHER.
	° ′	° ′	″			
S.S. *Matiana* .	8 32	69 25	29·849	SSW	2	Cloudy.
S.S. *Sultan* .	9 24	56 15	·759	NW	6	Fine. 4 P.M. occasional squalls of wind and rain.
S.S. *City of Venice.*	12 42	54 42	·805	N by E	6	Rough sea and cloudy. 8 P.M. occasional heavy rain squalls.
S.S. *Oriental* .	13 58	51 08	·873	NNW	2	Fine.
S.S. *Thorndale* .	15 43	54 06	·765	NE	4	Moderate sea and fine.
S.S. *St. Irene* .	15 44	58 59	·780	NE	6	Heavy squalls with rain.
S.S. *Persia* .	16 18	60 26	·806	NE	4 to 6	Frequent rain squalls.
S.S. *Steinburger*	17 17	64 07	·763	ENE	5	
S.S. *Massilia* .	17 30	66 12	·835	E	5	4 A.M. cloudy.

The winds exhibited a well-defined cyclonic circulation around a centre in about Lat. 10° 30′ N. and Long. 60° 0′ E., but there were no ships near the centre on this day, and the precise position of the centre can not be ascertained. The *St. Irene*, Lat. 15° 44′ N. and Long. 58° 59′ E., and the *Persia*, Lat. 16° 18′ N. and Long. 60° 26′ E. reported strong north-east winds and frequent squalls, the *City of Venice*, Lat. 12° 42′ N. and Long. 54° 42′ E., a strong north by east wind and heavy squalls, and the *Sultan*, Lat. 9° 24′ N. and Long. 56° 15′ E., strong north-west winds and wind and rain squalls. These vessels apparently defined the storm area.

October 30th.—The storm had apparently moved a little to the northward and the centre lay approximately in

Lat. 11°30′N. and Long. 60°0′E. The following gives marine data for this day :—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Bombay Office.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *Plassy* .	2 27	56 57	29·874	NW by W	2 to 4	Fine.
S.S. *Dunblane* .	4 36	66 0	·745	SW	3	Light showers.
S.S. *Putiala* .	5 57	50 48	·931	N	2	Smooth sea and fine.
S.S. *Sultan* .	10 01	60 01	·539	W	8	Heavy sea and occasional squalls of wind and rain.
S.S. *City of Venice.*	10 43	57 51	·615	WNW	...	Noon rain squalls.
S.S. *St. Irene* .	16 35	61 52	·730	NE	6 to 5	Heavy north-east sea.
S.S. *Thorndale* .	17 16	56 39	·825	NE	6	Moderate sea.
S.S. *Persia* .	17 30	66 33	·763	ENE	3	Cross swell and cloudy.

The only vessels in the neighbourhood of the centre on this day were the *Sultan*, Lat. 10°1′N. and Long. 60°1′ E., which reported a fresh westerly gale and squalls of wind and rain, and the *City of Venice*, Lat. 10°43′N. and Long. 57°51′E. with a west-north-west wind.

October 31st.—The following gives marine data for this day :—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Bombay Office.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *Plassy* .	6 30	61 03	29·798	W	3 to 4	Fine.
S.S. *Dunblane* .	7 35	67 37	·725	SW	2	Fine.
S.S. *Putiala* .	7 57	52 59	·851	NNW	4	Moderate sea and fine.
S.S. *City of Venice.*	9 33	61 32	·755	SW	4	Confused sea. Midnight passing squalls.
S.S. *Sultan* .	12 03	64 10	·739	SE	5	Fine.
S.S. *Somali* .	12 04	51 25	·842	NW	4	Moderate sea and fine. 4 P.M. dull hazy.
R.I.M.S. *Hardinge.*	14 17	51 44	·812	NW	2	Slight to moderate easterly swell and fine
S.S. *City of Lucknow.*	14 17	52 46	·790	NNE	4	High head swell.
S.S. *St. Irene* .	17 18	65 28	·770	ENE	4	Moderate sea and fine.
S.S. *Thorndale* .	19 14	59 33	·845	NE	5	Moderate sea and fine.

The preceding data show that no vessel lay in the neighbourhood of the storm on this day and that light winds circulating cyclonically around a centre in about Lat 12° o′N. and Long. 58° o′ E. were reported over the Arabian Sea.

November 1st.—The storm had become deeper and better defined and had travelled west-north-westward, the centre apparently lying in Lat. 14° 10′N and Long. 56° o′E. at 8 A.M. The following gives marine data for this day :—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Bombay Office.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *City of Venice.*	8 59	65 39	29·805	SSE	2	Southerly swell and showery.
S.S. *Putiala* .	10 17	54 44	·806	WSW	4	Moderate swell and fine. 8 P.M. squally.
S.S. *Plassy* .	10 27	64 40	·814	ENE	2	Fine.
S.S. *Dunblane* .	10 32	68 59	·725	N	2	Fine.
S.S. *Somali* .	11 24	56 11	·724	WNW	4	Moderate sea and cloudy. Midnight, showery.
S.S. *Sultan* .	13 50	68 14	·759	ENE	2	Fine.
S.S. *Caspian* .	14 13	49 31	...	Var.	2	Fine.
S.S. *City of Lucknow.*	14 45	53 18	·630	N	9	Very heavy confused sea and overcast.
R.I.M.S. *Hardinge.*	15 11	55 19	·629	NNE	8	Heavy north-east swell and rainy and squally.
S.S. *St. Irene* .	17 58	69 10	·760	NE	4	Moderate sea and fine.
S.S. *Thorndale*	21 29	62 36	·825	NE	4	Moderate sea.

Two vessels were in the neighbourhood of the storm on this day and define approximately the position of the centre. The *Hardinge* was in Lat. 15°11′N. and Long. 55°19′E and reported a fresh north-north-east gale and rain squalls, and the *City of Lucknow* was in Lat. 14° 45′N. and Long. 53°18′E. and reported a hard northerly gale and very heavy confused sea. Outside the storm area the winds were light and rather variable.

November 2nd.—The storm had moved north-westward and the centre apparently lay in Lat. 14° 30′ N. and Long. 55° o′E., and around this centre there existed a well-defined cyclonic circulation. The following gives marine data :—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E	Barometer as corrected by Bombay Office.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *Somali* .	10 31	61 09	29·859	SSE	3	Slight confused swell and fine. Midnight overcast.
S.S. *Gutenfels.*	12 03	50 02	·748	NNW	2	
S.S. *Scharzfels*	12 08	48 30	·849	ENE	2	
S.S. *Yeoman* .	12 11	49 20	...	NE	4	Heavy east-north-east swell, 4 A.M fine.
S.S. *Putiala* .	12 29	56 44	·826	W	4	Heavy north swell and dull. 8 P.M. rainy.
S.S. *Plassy* .	13 51	67 42	·875	Calm	0	Fine, 4 A.M. rain squalls.
S.S. *Soudan* .	14 11	50 57	·905	N	3	Slight easterly swell and fine.
R.I.M.S. *Hardinge.*	14 55	59 11	·759	SE by E	5	Slight south-east sea and cloudy.
S.S. *City of Lucknow.*	15 00	55 47	·480	E	8	High confused sea and terrific squalls and heavy rain.
S.S. *Caspian* .	15 18	52 14	...	N	4	Heavy south-east swell and overcast.

The *City of Lucknow*, Lat. 15° o'N. and Long. 55° 47'E., was nearest to the storm and reported a fresh easterly gale and terrific squalls of wind and rain. The other vessels, though exhibiting the influence of the storm in the directions of the winds reported, had only moderate breezes and cloudy to fair weather.

By the morning of the 3rd the storm had disappeared.

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

I.—KASHMIR AND PUNJAB HIMALAYAS.

(2) *Kilba.*—Simla:—The snowfall of the month was as follows:—

1st-½	inch of snow fell at	11,000	feet	and on peaks	6″
18th-1	,,	,,	,,	,,	4″
19th-1	,,	,,	,,	,,	1½′
20th-1	,,	,,	,,	,,	1½′
25th-½	,,	,,	,,	,,	2′
26th-½	,,	,,	,,	,,	8″

The accumulation of snow up to the end of October was as follows:—

Rupin Pass	6 feet
Bruin	6 ,,
Harung	Nil
Shatul	5 feet
Bulder	6 ,,
Runang	1 foot

All the passes except Harung, Bulder, and Runang were closed during the poriod.

(2) *Leh*:—Snow fell as under:—

25th October	1½ inches.
26th ,,	½ inch.

II.—UNITED PROVINCES HIMALAYAS.

(1) *Almora.*—Snow fell as under:—

Malla Johar.

3rd October 1902	1 foot.
6th ,,	1 ,,
10th ,,	1 ,,
17th ,,	1 ,,
19th ,,	2 feet.
24th ,,	1 foot.
28th ,,	1 ,,
	8 feet.

Malla Danpur.

3rd October 1902	3 inches.
10th and 11th ,,	6 ,,
14th to 17th ,,	1 foot.
23rd to 25th ,,	1 ,,
	2 ft. 9 ins.

Byans, Chandas and Darma.

9th October 1902	6 inches.
18th ,,	1 foot.
19th ,,	6 inches.
	2 feet.

The following was the depth of the accumulated snow on—

Utadhura	8 feet.
Ralamdhura	4 ,,
Pindari, Kaphini, Kantela	2 ft. 9 ins.

The snowfall in this district was greater than in 1901.

(2) *Garhwal.*—Snow fell on the perpetual snows on the 2nd, 14th, 19th and 25th. The falls were confined to the snowy range.

Summary of Special Storm Reports.

The following are the chief local storms during the month of October of which reports have been received:—

1st.—At Srinagar a violent squall occurred between 2 P.M. and 3 P.M.

2nd.—A slight dust and thunderstorm occurred at Srinagar between 4 P.M. and 9 P.M.

5th.—A thunderstorm accompanied with hail and rain commenced at Srinagar at 4 P.M. and continued till 10 P.M.

8th.—A storm with thunder and lightning occurred at Calicut on the evening of 8th.

A thunderstorm with light rain was experienced at Ootacamund at 3 A.M.

10th.—A violent dust and thunderstorm coming from north-east was experienced at Jacobabad at 4-47 P.M. The storm lasted half an hour.

A thunderstorm with heavy rain commenced at Ootacamund at about 10 P.M. The storm lasted about one and a half hours.

13th.—A dust storm passed over Jodhpur at 2-37 P.M. (Railway time) coming from south-east. The storm only lasted eight minutes.

14th.—A thunderstorm with hail and rain passed over Srinagar between 4 P.M. and 8 P.M.

17th.—A thunderstorm giving light rain was experienced at Lahore between 8-50 P.M. and 10 P.M.

At Srinagar a slight duststorm was felt from 4 to 8 P.M.

19th.—A violent nor'wester with dust and rain was experienced at Burdwan at 7-50 A.M. The storm lasted 15 minutes.

20th.—A thunderstorm occurred at Simla between 3 P.M. and 4-30 P.M. During the storm hail and rain fell.

21st.—A duststorm with shower of rain occurred a Khandwa at 6 P.M.

24th.—A thunderstorm with rain passed over Khandwa at 10 P.M.

Earthquake Reports.

A severe shock of earthquake was felt at Chitral at 2 P.M. on the 6th October. Several houses were damaged and fell and a good deal of injury was done to the levy post at Mirkhani.

Further details have been received of the earthquakes in Kashgaria. It is confirmed that Artosh and all the adjacent hamlets are in ruins. There were further irregular shocks at Kashgar between the 1st and 16th September, and Aksu, which lies 400 miles north-east of Kashgar, is said to have suffered rather severely from the great earthquake of August 22nd.

At Simla the shock of the 6th October was also felt at 2-25 P.M. local time. The shock lasted for about 20 seconds and passed from south to north. At Srinagar the shock was felt at 2-35 P.M. and lasted 3 minutes and 55 seconds. On the same day severe earthquake shocks were felt—

at Skardu	at 2-40 P.M.	lasting	. .	30″
„ Sonemarg	„ 2-30 P.M.	„	. .	3
„ Dras	„ 2-38 P.M.	„	. .	40″
„ Kargil	„ 2-35 P.M.	„	. .	1′

Hail Storm Reports.

13th October.—A hailstorm occurred at Mouza Barnee in the Pergana Garoth (Central India) at 5 P.M. The stones were of about the size of a gram.

18th October.—A severe hailstorm occurred at Nongjingi in the Jowai sub-division in the Assam hills. The storm lasted about 15′ and the hailstones were of the size of an egg.

19th October.—A severe hailstorm passed over Saipung in the above sub-division. The storm lasted for about 15′ from noon, and hailstones were about the size of a nut.

October 24th and 25th.—Hailstorms accompanied with rain occurred at Alote and round Kasâree, a village in the Alote Pergana of the Dewas State, Central India. The size of the hailstones that fell at Alote was like jungle berries, the fall lasting for five minutes, while the size of the hail that fell in the direction of Kasâree was like betelnuts and it lasted for 15 minutes.

Sunspots.—On the 25th October the Director of the Kodaikanal Observatory reported the appearance of one very large and one moderate group of sunspots.

Brief Summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—The more important features of the meteorological conditions of the month over this area were as follows:—

(1) Abnormal westerly winds, due to the prevalence of low pressure conditions over Sind, Baluchistan, etc., obtained over the whole of the north of the Arabian Sea during the first twenty days of the month.

(2) Weather was more disturbed than usual in consequence of the formation of two cyclonic disturbances over the central parts of the sea. The first of these originated on the 11th and 12th over the region lying between the parallels of 10°N. and 18° N., and the meridians of 62°E. and 70° E., and advanced along a north-westerly track towards the Arabian coast between Kuria Muria and Muscat during the next six days. It was apparently a dangerous cyclone on the 16th and 17th when the vessels nearest to the centre experienced winds of hurricane violence. The second disturbance originated between Socotra and the meridian of 68° E. on the 28th, and drifted slowly along a westerly or west-north-west track during the next three days. In the absence of information for the central area, it is not possible to determine the intensity of the storm. The fact that winds of force 6 to 8 prevailed at considerable distances from the centre tends to show that it was a rather severe disturbance.

(3) The mean daily air movement exceeded the normal during two well-defined periods, *viz.*, the 11th to the 16th, and the 23rd to the 31st, and was lighter than usual on most other days. Winds were, on the whole, lightest on the first three days, when they averaged only 2·3 in force as compared with 2·7, the normal of the month. On the mean of the whole month the air movement was 0·2 above the normal.

Bay of Bengal.—Weather was more or less disturbed over this area during the first three days, and again towards the end of the month, and quiet on most other days. Two storms visited the Bay during the month; one between the 1st and the 3rd, and the other between the 27th and the 30th. They were both of them feeble disturbances, and exercised only a limited influence on the weather. The first storm advanced along a northerly course to the east Bengal coast which it crossed on the 3rd. The second storm, on the other hand, followed a north-westerly track and struck the Coromandel coast on the 28th. As the storms were only of slight intensity, the strongest winds experienced by vessels in the Bay during their existence did not exceed 6 in force. The mean air movement over the Bay ranged between 1·8 and 3·7 during the month, and was considerably feebler than usual on at least 25 days.

On the mean of the whole month the air movement over this area averaged 2·5 or 0·6 below the normal.

Westerly winds of indraught to the land area prevailed over the north of the Bay during the first eighteen days, and it was not until the 20th that the conditions altered to the type characteristic of the retreating monsoon period. The principal feature of the meteorology of the Bay was hence the weakness of the air movement during the greater part of the month.

Equatorial Belt.—The information for this region is, as usual, very limited but suffices to show that south-east winds of moderate intensity prevailed over the west of the belt throughout nearly the whole of the month, and that

they blew more directly from the east than usual along the African coast, and from south in the neighbourhood of Port Victoria (Seychelles). This is fully borne out by the returns of Zanzibar and the Seychelles. The mean wind direction of the month was S.19°E., at Zanzibar, the normal being S. 3° E., while at the Seychelles it was S. 14° E., as compared with S. 44° E., the normal of the month. Unusually heavy rainfall accompanied these large variations in the direction of the air movement. Thus Zanzibar obtained a total fall of 6·38 inches, as compared with 2·99 inches, the normal of the month, and the Seychelles 8·60 inches, or 3·06 inches more than its normal quantity.

Temperature of the Air.

The mean temperature conditions of the month departed very considerably from the normal, the variations from the average agreeing, as is customary, to a large extent with the variations of rainfall from the normal.

The mean maximum or day temperature of the month was higher than usual in a broad irregular band which extended from Tenasserim across the Bay, the central parts of India and of the Peninsula to the west coast where it apparently turned northward towards Sind and Baluchistan. This band was very irregular as to its boundaries and extent, but the variations of temperature within it were generally only slight or small. There were, however, five small areas within which the variations equalled or exceeded 2°·0. The following table gives comparative data for the stations in the different areas:—

Province.	Station.	Mean maximum temperature.		
		Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
		°	°	°
Tenasserim . .	Mergui . . .	89·4	87·2	+2·2
Orissa . .	Cuttack . . .	92·3	89·7	+2·6
	False Point . .	89·6	87·4	+2·2
Central Provinces.	Sambalpur . .	91·0	8 8·8	+2 2
	Raipur . . .	90·5	88·3	+2·2
Bombay Deccan .	Sholapur . . .	92·0	89·9	+2·1
West Coast . .	Bombay . . .	89·5	87·5	+2·0

Over the greater part of northern and north-eastern India (including upper Burma), as well as over the east and south of the Peninsula the mean maximum temperature was in defect of the normal. The negative variations were generally greater than the positive variations and amounted to more than 2°·0 over the central and east Punjab and the adjacent districts of the United Provinces, over parts of Assam and of centra and upper Burma and over part of south Madras. The following gives comparative data for all stations at which the deficiency was more than 2°·0:—

Province.	Station.	Mean maximum temperature.		
		Actual, October 1902.	Normal, October	Variation of actual from normal, October 1902.
		°	°	°
Central and East Punjab .	Montgomery . .	93·3	96·6	−2·8
	Ludhiana . . .	89·2	91·9	−2·7
	Umballa . . .	90·6	93·2	−2·6
	Lahore . . .	92·7	95·1	−2·4
	Delhi . . .	89·9	92·1	−2·2
United Provinces	Roorkee . . .	87·0	89·3	−2·3
	Dehra Dun . .	80·1	82·3	−2·2
Assam . .	Sibsagar . . .	81·1	84·8	−3·7
Burma . .	Bhamo . . .	85·6	88·5	−2·9
	Minbu . . .	89·1	91·3	−2·2
South Madras .	Tinnevelly . .	90·5	93·7	−3·2
	Madura . . .	88·9	91·3	−2·4
	Trichinopoly . .	88·8	91·0	−2·2
	Cuddalore . .	86·0	88·1	−2·1

The distribution of the maximum temperature, realtively to the normal, in October 1902 was in marked contrast with that in October 1901, in which month the day temperature was in considerable to large excess over the whole of the interior of India.

The mean actual maximum of the month exceeded 100° at Jacobabad and exceeded 95° over the southern portion of the North-West Dry area. Thence the mean actual day temperature decreased and was lowest over Mysore and Assam. The highest maximum temperatures were generally recorded between the 1st and 3rd in Assam and north Bengal, between the 10th and 13th over Upper and North-West India, in the first week of the month in Madras and about the 20th to the 23rd over the west of the Peninsula. The absolute maximum temperatures were nowhere high

and have frequently been exceeded except in Mysore. The following gives data of the absloute maximum recorded in each province in illustration :—

PROVINCE OR DIVISION.	STATION.	Highest maximum temperature recorded in October 1902.	Date on which recorded.	Highest maximum temperature recorded in October previous to 1902.	Year in which recorded.
		°		°	
BURMA . .	Toungoo . .	96·4	16th	98·7	1899
ASSAM . .	Silchar . .	94·0	3rd	97·6	1900
BENGAL . .	Raniganj . .	94·2	10th & 12th	99·5	1889
ORISSA . .	Cuttack . .	95·4	21st	101·8	1886
BIHAR . .	Gaya . .	95·2	13th	100·0	1877
CHOTA NAGPUR	Daltonganj .	94·1	10th	99·1	1899
UNITED PROVINCES.	Jhansi . .	100·3	23rd	108·0	1871
PUNJAB . .	Mooltan . .	101·4	4 days	106·4	1901
SIND . .	Jacobabad . .	107·4	9th	108·9	1899
RAJPUTANA .	Pachpadra .	101·5	13th	109·5	1895-96
GUJARAT . .	Bhavnagar Para	100·6	19th	106·1	1899
CENTRAL INDIA	Neemuch . .	97·0	13th	102·5	1899
CENTRAL PROVINCES.	Khandwa . .	97·2	19th & 24th	105·2	1899
BERAR . .	Akola . .	96·4	20th & 24th	104·2	1899
WEST COAST .	Ratnagiri . .	93·9	25th	99·1	1888
BOMBAY DECCAN	Sholapur . .	96·7	20th & 21st	101·2	1896
MYSORE . .	Chitaldroog .	92·6	5th	91·1	1899
MADRAS COAST	Vellore . .	97·4	3rd	98·4	1901
MADRAS DECCAN	Bellary . .	98·0	5th	102·2	1896
SOUTH INDIA .	Tinnevelly .	97·3	1st, 3rd and 5th.	102·4	1894-97-99-00.

The mean minimum temperature of the month was lower than usual over Burma, Assam, Bengal and the east of the Peninsula. The deficiency was slight or small, except over parts of Burma and Assam and locally at Raipur (—2°·2). The following gives comparative data for the stations at which the deficiency exceeded 2°·0.

PROVINCE.	STATION.	MEAN MINIMUM TEMPERATURE.		
		Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
		°	°	°
ASSAM	Sibsagar	67·6	70·8	—3·2
	Silchar	69·3	72·3	—3·0
	Dhubri	70·3	72·8	—2·5
BURMA	Bhamo	66·6	69·6	—3·0
	Toungoo	72·4	74·8	—2·4

The minimum temperature was likewise slightly and locally in defect at the foot of the Kumaun Himalayas. In all other parts of the country the mean minimum temperature was in excess of the normal. The excess increased towards north-west India and was greatest and considerable over the North-West dry area. The following gives comparative data for those stations at which the excess was more than 5°·0 on the mean of the month :—

STATION.	MEAN MINIMUM TEMPERATURE.		
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
	°	°	°
Kurrachee	76·4	70·9	+5·5
Lahore	64·6	59·1	—5·5
Jacobabad	67·9	62·5	+5·4
Khushab	67·2	61·9	+5·3

At most of the hill stations the variations of the mean temperature from the normal agreed generally with the variations at the stations on the neighbouring plains. Thus over Baluchistan and Sind, over the hills and plains of the Central Provinces and of Southern India there was an excess, while over the hills and plains of the North-East and Central Himalayan regions there was a defect, while at Mount Abu and in the Murree hills there was a deficiency in the mean minimum temperature, while on the neighbouring plains there was a greater or less excess. The lowest minimum temperatures recorded on the North-West Himalayas were as follows :—

HILL STATION.	Lowest minimum temperature recorded in October 1902.	Date on which recorded.	Lowest minimum temperature recorded in October previous to 1902.	Year in which recorded.
	°		°	
Simla	42·8	20th October	30·0	1877
Para Chinar . . .	42·2	31st ,,	40·1	1899
Chitral	39·0	20th ,,	36·0	1898-99
Murree	38·0	31st ,,	37·7	1890
Poo	34·1	26th ,,	33·2	1900
Skardu	32·1	25th ,,	30·7	1898
Srinagar . . .	25·6	19th ,,	29·6	1894
Leh	25·5	26th ,,	18·5	1895
Sonemarg . . .	23·1	24th & 28th ,,	...	...
Dras	19·1	26th & 28th ,,	5·6	1898
Kalat	17·6	18th ,,	17·2	1894-1901

Except at Srinagar, the minima of October 1902 were hence generally higher than those previously recorded.

The mean temperature of the month was in defect over the east of the Peninsula and Ceylon. The deficiency

was generally slight and exceeded 2°·0 only at the station for which comparative data are given below:—

Station.	Mean daily temperature. Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
	°	°	°
Tinnevelly	83·0	85·2	—2·2

The mean temperature was also in defect over Upper Burma, the Arakan coast, Assam, and the East and West Himalayan and Sub-Himalayan regions. The deficiency was considerable at the hill stations and over Assam and part of Upper Burma. The following gives data for the stations with a mean deficiency of 2°·0 or more:—

Station.	Mean daily temperature. Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
	°	°	°
Sibsagar	74·4	77·9	—3·5
Bhamo	76·1	79·1	—3·0
Dhubri	76·5	78·7	—2·2
Silchar	78·4	80·5	—2·1
Murree	57·8	61·3	—3·5
Chakrata	55·9	58·6	—2·7
Darjeeling	52·9	55·3	—2·4
Ranikhet	59·7	61·8	—2·1
Mussooree	56·3	58·3	—2·0
Simla	54·8	56·8	—2·0

Over the whole of the remainder of India the mean temperature was in excess. The excess was more than 2°·0 over part of Tenasserim, over the Bombay Deccan and the North Konkan coast, over part of the Sub-montane Punjab and over the Indus Valley and Baluchistan. The following gives comparative data:—

Province or Division.	Station.	Mean daily temperature. Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
		°	°	°
Tenasserim	Mergui	81·9	79·7	+2·2
Bombay Deccan	Sholapur	81·9	79·0	+2·9
	Poona	80·2	77·5	+2·7
	Ahmednagar	78·7	76·3	+2·4
North Konkan	Surat	84·3	81·9	+2·4
	Bombay	84·3	82·0	+2·3
Indus Valley	Kurrachee	84·8	81·2	+3·6
	Jacobabad	84·0	80·5	+3·5
	Mooltan	82·4	79·9	+2·5
Sub-montane Punjab	Sialkot	79·7	77·1	+2·6
Baluchistan	Quetta	59·0	56·4	+2·6
	Chaman	67·3	64·8	+2·5

The chief features of the mean temperature conditions of the month were as follows:—

(1) Higher day and higher night temperatures than usual over the greater part of the west and centre of the Peninsula and of Tenasserim.

(2) Lower day temperatures and higher night temperatures than usual over North-West India.

(3) Lower day and lower night temperatures than usual over North-East India and the greater part of the east of the Peninsula.

(4) Lower day and lower night temperatures than usual at the Himalayan and higher day and higher night temperatures than usual at the Baluchistan hill stations.

The following table gives temperature data of the month for 56 meteorological divisions of India:—

Province.	Division.	Actual temperatures. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of month of Maximum.	Mirimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	89·8	74·3	82·1	15·5	22·2	+1·9	+0·9	+1·0
	Lower Burma (Deltaic)	87·5	76·4	82·0	11·0	16·5	+0·3	+0·6	—0·3
	Central do.	90·6	72·5	81·8	18·1	25·7	+0·3	—1·9	+2·2
	Upper do.	88·4	71·6	80·1	16·8	24·7	—1·8	—1·4	—0·4
	Arakan	87·2	75·0	81·1	12·2	18·2	—0·6	—1·7	+1·1
Bengal and Assam	Eastern Bengal	86·0	73·1	79·6	12·9	20·6	—1·2	—1·0	—0·2
	Assam (Surma)	87·5	69·3	78·4	18·2	32·7	—1·2	—3·0	+1·8
	Do. Hills	69·7	55·2	62·5	14·5	25·0	...	...	...
	Do. (Brahmaputra)	82·6	68·3	75·5	14·2	26·8	—2·8	—2·9	+0·1
	Deltaic Bengal	88·3	73·7	81·0	14·5	23·0	+1·0	—0·4	+1·4
	Central do.	87·7	72·4	80·1	15·3	24·4	—0·3	—0·8	+0·5
	North do.	85·0	69·7	77·3	15·3	26·9	—1·7	—1·7	0
	Bengal Hills	58·2	47·4	52·9	10·8	23·1	—2·3	—2·4	+0·1
	Orissa	90·4	74·7	82·6	15·7	23·8	+2·1	—0·2	+2·3
	Chota Nagpur	88·1	68·6	78·4	19·5	28·8	+0·9	+1·3	—0·4
	Bihar (South)	88·9	71·1	80·0	17·8	29·9	—0·3	—0·1	—0·2
	Do. (North)	86·2	70·7	78·5	15·6	26·1	—1·8	—0·8	—1·0

Province.	Division.	Actual temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
United Provinces of Agra and Oudh.	United Provinces (East)	92·0	66·8	79·5	25·2	38·2	+0·2	−0·4	+0·6
	Oudh (South)	90·9	66·1	78·5	24·8	38·1	−0·3	+0·6	−0·9
	Do. (North)	88·8	68·0	78·4	20·8	32·1	−1·3	+0·8	−2·1
	United Provinces (Central)	92·5	68·2	80·3	24·3	38·2	+0·1	+1·7	−1·6
	Do. do. (West)	91·0	67·2	79·1	23·8	36·7	−0·5	+2·8	−3·3
	Do. do. (East Sub-montane)	86·9	68·7	77·8	18·2	29·9	−1·8	−1·3	−0·5
	Do. do. (West Sub-montane)	85·0	62·4	73·8	22·6	33·9	−2·0	0	−2·0
	Do. do. (Hills)	64·0	49·6	56·8	14·4	24·8	−2·8	−1·7	−1·1
Punjab and North-West Frontier Province.	Punjab (South-East)	89·9	69·1	79·5	20·8	37·1	−2·2	+1·2	−3·4
	Do. (South)	91·6	65·5	78·5	26·1	39·9	−1·9	+4·2	−6·1
	Do. (Central)	92·7	64·6	78·7	28·1	41·8	−2·4	+5·5	−7·9
	Do. (Sub-montane)	90·8	64·4	77·6	26·5	40·4	−1·6	+2·5	−4·1
	Do. (Hills)	67·9	44·0	56·0	23·9	42·9	−1·3	−0·4	−0·9
	Do. (North)	87·3	60·5	73·9	26·8	43·9	−1·1	+4·0	−5·1
	Do. (West)	93·5	66·9	80·2	26·6	40·7	−1·5	+4·7	−6·2
Bombay and Malabar Coast Districts (Madras).	Malabar	85·3	74·8	80·1	10·5	15·9	+0·1	+0·7	−0·6
	Madras (South Central)	88·5	71·0	79·8	17·5	31·0	−0·5	+0·1	−0·6
	Coorg	76·7	62·0	69·4	14·7	24·4	+0·9	−0·2	+1·1
	Mysore	83·4	66·1	74·7	17·3	29·3	+0·5	0	+0·5
	Konkan	87·3	76·4	81·9	10·9	18·2	+0·8	+1·4	−0·6
	Bombay Deccan	88·5	69·4	79·0	19·1	29·4	+1·1	+2·6	−1·5
	Hyderabad (North)	87·7	69·1	78·4	18·6	26·4	...	...	...
	Khandesh	89·3	68·7	79·0	20·7	32·6	−0·1	+3·5	−3·6
Central Provinces and Berar.	Berar	91·1	69·5	80·3	21·7	30·4	+0·2	+2·3	−2·1
	Central Provinces (West)	90·8	68·2	79·5	22·6	31·1	+1·1	+1·5	−0·4
	Do. (Central)	88·7	66·6	77·7	22·1	32·1	+0·8	+1·0	−0·2
	Do. (East)	90·8	68·8	79·8	22·0	29·5	+2·2	−2·0	+4·2
Bombay (North)	Gujarat	95·3	74·0	84·7	21·3	30·9	+0·4	+2·6	−2·2
	Kathiawar and Cutch	93·1	73·1	83·1	20·0	30·8	0	+1·9	−1·9
	Sind	96·7	72·1	84·4	24·6	39·7	+0·6	+4·3	−3·7
	Baluchistan Hills	76·4	41·3	58·9	35·2	51·4	+1·1	+2·3	−1·2
Rajputana and Central India.	Central India (East)	88·8	65·9	77·4	22·9	35·5	+0·1	+1·1	−1·0
	Rajputana (East), Central India (West)	92·5	67·3	80·0	25·2	35·5	−1·0	+3·1	−4·1
	Do. (West)	96·2	69·9	83·1	26·3	39·5	−1·4	+2·6	−4·0
Madras	East Coast (North)	88·6	75·1	81·9	13·5	24·4	+0·4	−0·3	+0·7
	Hyderabad (South)	90·0	71·1	80·6	18·9	27·3	+1·6	+1·8	−0·2
	Madras (Central)	91·9	72·0	82·0	19·9	29·1	+1·1	−0·1	+1·2
	East Coast (Central)	89·0	75·2	82·1	13·8	22·9	−1·1	−0·7	−0·4
	Do. (South)	87·6	74·6	81·1	13·0	24·4	−1·6	−0·1	−1·5
	Madras (South)	88·7	74·3	81·1	14·4	24·7	−2·8	−0·9	−1·9

The above shows that, as usual in October, the mean temperature was fairly uniform throughout the Indian land area. The hottest area was in the north-west, in Gujarat and Sind, where the mean temperatures were 84°·7 and 84°·4, respectively. From this area the mean temperature decreased and was relatively low in the Brahmaputra Valley (75°·5), the West Sub-montane division of the United Provinces (73°·8), the North Punjab (73°·9) and Mysore (74°·7), so that the range of the mean temperature over India was only 10°·9. This range was smaller than the range in the same month last year, and the mean daily range was also generally smaller than in October 1901, when the weather was generally hotter and finer than in the month under review. The rainfall during the month of October 1902 was local in character, and hence on some days there occurred large contrasts of temperature in neighbouring parts of the country.

During the first seven days of the month the general temperature conditions over India were fairly settled and steady. The mean temperature was generally high over the Peninsula and in Sind and the Punjab. This is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of						
	1st Oct.	2nd Oct.	3rd Oct.	4th Oct.	5th Oct.	6th Oct.	7th Oct.
	°	°	°	°	°	°	°
West Coast	+0·2	+0·3	+1·0	+1·7	+2·3	+2·2	+1·8
Bombay Deccan	−0·3	+0·4	+2·1	+4·5	+2·6	+1·8	+3·3
Mysore	+2·7	+3·2	+2·9	+3·2	+3·1	+3·6	+2·8
Madras Coast	+0·2	+0·4	+0·3	−0·1	+0·2	+0·9	+0·2
Madras Deccan	+1·2	+2·0	+2·2	+2·9	+2·6	+2·8	+2·7
South India	+0·7	+1·1	+2·2	+1·7	+0·2	+0·6	−2·2
Sind	+0·4	+0·8	+0·2	+0·5	+1·2	+1·6	+1·4
Punjab	+1·7	+1·0	+1·2	+1·0	+1·7	+2·6	−1·2

The mean temperature was generally low over Gujarat and thence eastward over the Gangetic Plain and the central parts of the country, though in this area the temperature was somewhat less steady and settled than in other parts of the country. The following gives comparative data for the seven days :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	1st Oct.	2nd Oct.	3rd Oct.	4th Oct.	5th Oct.	6th Oct.	7th Oct.
	°	°	°	°	°	°	°
Gujarat	−2·7	−2·0	−0·4	+0·9	+1·8	+1·3	−0·1
Rajputana	−2·1	−1·8	−1·3	+0·1	+0·6	+1·1	−0·3
Central India	−2·8	−1·4	−1·1	−0·3	−0·3	+0·5	+0·2
Central Provinces	−1·7	−1·7	−0·6	−0·7	−0·3	−0·3	+0·3
Berar	−0·7	−5·2	−0·6	+0·1	−0·8	−0·1	+0·8
United Provinces	−1·1	−1·1	−1·4	−0·7	−0·3	+0·3	+0·7

North-East India was visited by moderately heavy rainfall from a cyclonic storm in the Bay during this interval, and the mean temperature of the Bengal divisions and of Assam, which was nearly normal at the commencement of the period, fell by the 4th to largely below the normal and continued low till the close of the period. This change is shown below :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	1st Oct.	2nd Oct.	3rd Oct.	4th Oct.	5th Oct.	6th Oct.	7th Oct.
	°	°	°	°	°	°	°
Bengal	−0·1	+0·7	−1·3	−4·8	−1·6	−1·1	−0·6
Orissa	−0·2	−0·3	−0·3	−0·2	−0·8	+0·7	+0·7
Bihar	−0·6	−0·3	−0·9	−2·6	−1·8	−0·9	−0·6
Chota Nagpur	−0·7	−0·7	−0·5	−0·3	−0·2	−0·5	−0·1
Assam	−0·5	+0·5	−0·4	−5·8	−3·6	−3·5	−2·5

In Burma similar changes occurred. The rainfall from the cyclonic storm affected this province on the 1st and the mean temperature was low on that and the following day, but on the 3rd higher temperatures than usual appeared in Tenassarim and subsequently extended northward over the Burma coast. The following gives comparative data for this province for this period :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	1st Oct.	2nd Oct.	3rd Oct.	4th Oct.	5th Oct.	6th Oct.	7th Oct.
	°	°	°	°	°	°	°
Burma	−2·6	−2·2	−1·8	−0·9	0	+0·3	+0·5

The rainfall in North-East India and Burma chiefly affected the day or maximum temperature, and the following large departures from the normal were reported during this period of rainfall :—

DATE.	STATION.	MAXIMUM TEMPERATURE.		
		Actual, of date.	Normal, of date.	Variaton of actual from normal, of date.
		°	°	°
1ST OCTOBER	Lashio	67·1	84·4	−17·3
	Kindat	76·8	88·0	−11·2
	Thayetmyo	80·0	90·1	−10·1
	Yamethin	84·3	92·7	− 8·4
	Minbu	83·2	91·5	− 8·3
2ND ,,	Lashio	68·6	84·4	−15·8
	Minbu	80·7	91·4	−10·7
3RD ,,	Lashio	73·6	84·4	−10·8
	Minbu	81·7	91·4	− 9·7
	Yamethin	84·3	92·6	− 8·3
4TH ,,	Mymensingh	77·7	87·4	− 9·7
	Barisal	79·3	88·9	− 9·6
	Bhamo	80·5	90·0	− 9·5
	Bogra	79·3	88·7	− 9·4
	Chittagong	78·4	87·4	− 9·0
	Kindat	79·3	88·2	− 8·9
	Silchar	80·9	89·8	− 8·9
	Sibsagar	78·3	87·2	− 8·9
	Narayanganj	80·6	88·8	− 8·2

On the 8th slight showers were reported from Kashmir and the mean temperature had fallen and was low over Further Kashmir, the North-West Himalayas and at the stations at the foot of the hills. Temperature had likewise fallen on the coasts of the Peninsula and in North-East India and had generally risen elsewhere. The following gives comparative data for all divisions for the 8th and illustrates the general distribution of temperature, relatively to the normal, which prevailed over India for the next six days :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 8th October.	Mean minimum temperature, 8th October.	Mean daily temperature, 8th October.
	°	°	°
Burma	−0·9	−0·9	−0·9
Assam	−4·8	−4·1	−4·5
Bengal	0	−2·1	−1·1
Orissa	+3·5	−1·6	+1·0

Province or Division.	Variation from normal of Mean maximum temperature, 8th October, 1902.	Mean minimum temperature, 8th October 1902.	Mean daily temperature, 8th October 1902.
	°	°	°
Bihar	+0·6	—1·8	—0·6
Chota Nagpur	+0·9	+0·5	+0·7
United Provinces of Agra and Oudh	+1·3	—1·1	+0·1
North-West Frontier Province and Punjab	+0·4	+1·7	+1·1
Sind	+2·1	+2·8	+2·5
Rajputana	+0·6	+2·9	+1·8
Gujarat	+1·2	—3·1	—1·0
Central India	+0·9	—0·4	+0·3
Central Provinces	+2·5	—0·4	+1·1
Berar	+1·9	+1·6	+1·8
West Coast	+1·0	+1·2	+1·1
Bombay Deccan	+3·5	+2·5	+3·0
Mysore	+3·6	—0·8	+1·4
Madras Coast	—1·5	+0·1	—0·7
Madras Deccan	+2·9	+2·6	+2·8
South India	—2·5	—0·3	—1·4

During this period the mean temperature was generally high over the interior of the Peninsula, North-Western and Central India and Tenasserim and generally low over the coasts of the Peninsula, North-East India and the Sub-Himalayan regions. The variations of temperature from the normal at this time were, on the whole, moderate or slight, but there was a considerable deficiency over parts of Bengal, Assam and Upper Burma between the 8th and the 11th. The following gives comparative data for those stations at which the mean deficiency amounted to more than 4° between these dates :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
8th October	Bhamo	—10·4
	Dhubri	— 5·5
	Sibsagar	— 4·3
9th „	Minbu	— 5·5
	Bhamo	— 5·1
	Silchar	— 5·1
	Mandalay	— 4·8
	Sibsagar	— 4·1
10th „	Mandalay	— 5·5
	Dinajpur	— 5·4
	Purnea	— 4·9
	Minbu	— 4·2

Temperature was also locally low between these date at some stations in the extreme south of the Peninsula. This is shown below :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
9th October	Madura	—4·7
	Tinnevelly	—4·6
10th „	Do.	—4·2
11th „	Negapatam	—4·7

Within the area of excessive temperature the only important variations were shown on the 12th and 13th over the west of the Central Provinces, Gujarat and Lower Sind. The following gives comparative data for stations with a mean excess of more than 4° :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
12th October	Veraval	+ 6·6
	Rajkot	+ 4·7
	Surat	+ 4·3
	Sholapur	+ 4·3
	Kurrachee	+ 4·2
	Ahmednagar	+ 4·1
13th „	Kurrachee	+10·3
	Khandwa	+ 4·6
	Saugor	+ 4·5
	Akola	+ 4·2
	Indore	+ 4·1

On the 13th a few light showers of rain were reported from Gujarat and on the following day these showers extended eastward and northward to the adjacent parts of Bombay, the Central Provinces and Rajputana. These showers were followed by a very rapid fall of temperature over Gujarat, the Central India Plateau, and the West Satpuras on the 14th and over the East Satpuras and the Gangetic Plain on the 15th. The following gives comparative data for those stations at which the variation of the mean

temperature from the normal exceeded 5° on these two days:—

Date.	Station	Variation from normal of: Maximum temperature of date.	Minimum temperature of date.	Mean temperature of date.
		°	°	°
14th October	Malegaon	−17·0?	−2·7	−9·9?
	Surat	−15·6	−1·0	−8·3
	Bhavnagar Para	−11·3	+0·8	−5·3
15th „	Indore	−16·6	−2·6	−9·6
	Hoshangabad	−13·6	−3·8	−8·7
	Khandwa	−17·8	+1·1	−8·4
	Malegaon	−13·9	−1·4	−7·7
	Nowgong	−12·0	−1·5	−6·8
	Saugor	−9·4	−2·5	−6·0
	Seoni	−10·5	−0·8	−5·7
	Neemuch	−7·4	−3·9	−5·7
	Sutna	−8·0	−2·4	−5·2

The preceding data show that the maximum temperatures were very largely below the normal over this area at this time. During these two days temperature was, on the contrary, high over the greater part of Sind, Baluchistan and part of the North-West Frontier Province and the Punjab, where, however, the principal excess was shown in the night or minimum temperatures. The following gives data for those stations at which the mean excess was 4° or more:—

Date.	Station.	Variation from normal of: Maximum temperature of date.	Minimum temperature of date.	Mean temperature of date.
		°	°	°
14th October	Sialkot	+3·5	+5·9	+4·7
	Rawalpindi	+3·7	+5·2	+4·5
	Kurrachee	+2·2	+6·4	+4·3
	D. I. Khan	+1·1	+7·1	+4·1
	Lahore	+2·2	+5·9	+4·1
	Khushab	+1·5	+6·5	+4·0
	Chaman	+3·9	+4·0	+4·0
15th „	Quetta	+5·4	+15·7	+10·6
	Chaman	+4·2	+14·8	+9·5
	Sialkot	+3·4	+7·4	+5·4
	Rawalpindi	+3·0	+6·7	+4·9
	Jacobabad	+2·1	+7·1	+4·6

On the 16th and 17th the mean temperature generally exceeded the normal, except in the extreme south of the Peninsula and in North-East India and Burma. The following gives data for all divisions for the 17th in illustration:—

Province or Division.	Variation from normal of: Mean maximum temperature, 17th October.	Mean minimum temperature, 17th October.	Mean daily temperature, 17th October.
	°	°	°
Burma	−1·4	−1·3	−1·4
Assam	−3·7	−3·1	−3·4
Bengal	−1·6	−2·5	−2·1
Orissa	+3·3	−1·6	+0·9
Bihar	−1·4	−0·3	−0·9
Chota Nagpur	+0·3	+0·1	+0·2
United Provinces of Agra and Oudh	0	+0·7	+0·4
North-West Frontier Province and Punjab	+0·1	+6·2	+3·2
Sind	+0·4	+6·0	+3·2
Rajputana	−0·6	+4·8	+2·1
Gujarat	−0·6	+6·0	+2·7
Central India	−0·4	+1·1	+0·4
Central Provinces	+1·7	−1·3	+0·2
Berar	+1·2	+2·7	+2·0
West Coast	−0·3	+0·7	+0·2
Bombay Deccan	+2·0	+3·8	+2·9
Mysore	+0·5	+0·3	+0·4
Madras Coast	+1·6	−0·2	+0·7
Madras Deccan	+2·9	+0·6	+1·8
South India	−3·9	+0·1	−1·9

On this day the chief feature in the temperature conditions was the considerable to very large excess shown in the minimum or night temperature over the Punjab, the North-West Frontier Province, Upper Sind and Baluchistan. The following gives data for some representative stations:—

Station.	Variation from normal of minimum temperature of 17th October.
	°
Chaman	+13·4
Quetta	+11·9
D. I. Khan	+10·1
Lahore	+8·3
Hyderabad Sind	+7·8
Mooltan	+7·6
Jacobabad	+7·5
Khushab	+6·9
Sirsa	+6·4
Montgomery	+6·2
Peshawar	+5·7
Bikaner	+5·1

A few showers occurred over the North-West Himalayas and parts of the Punjab during the 17th or morning of the 18th, and these showers were followed by a rapid to very rapid fall of temperature at Killa Drosh, Gilgit, Chitral and over the North-West Frontier Province and Baluchistan. This fall reduced temperature to below the normal in the extreme north-west and these diminished temperatures extended over the Punjab and Western Rajputana on the 19th and over the west of the United Provinces on the 20th. The following gives comparative data for certain representative stations in illustration of this change :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	17th October.	18th October.	19th October.	20th October.
	°	°	°	°
Quetta	+7·6	—3·9	—0·5	—0·9
Chaman	+8·7	—4·0	—3·0	—1·9
D. I. Khan	+4·7	—0·5	—1·3	0
Peshawar	+1·2	—5·4	—3·9	—2·3
Cherat	—2·8	—7·4	—5·7	—0·2
Lahore	+4·2	+5·9	—2·4	+1·0
Montgomery	+2·4	+3·7	—2·6	—2·8
Srinagar	+2·7	+6·4	—12·5	—0·8
Umballa	+0·6	+5·3	+3·2	—5·7
Dehra Dun	—1·1	+0·2	+0·5	—3·2
Delhi	+2·7	+4·0	+0·8	—4·0
Roorkee	—0·6	+1·3	+2·1	—0·5
Bareilly	+0·4	+2·0	+2·3	—2·4
Meerut	+0·6	+3·4	+3·8	—1·9

From the 21st to the 24th the distribution of mean temperature, relatively to the normal, was fairly steady. The following comparative data for the 23rd illustrate the general distribution for this period :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 23rd October.	Mean minimum temperature, 23rd October.	Mean daily temperature, 23rd October.
	°	°	°
Burma	+1·2	+0·3	+0·8
Assam	—0·3	—2·7	—1·5
Bengal	+0·9	+0·5	+0·7
Orissa	+3·3	+1·9	+2·6
Bihar	+0·1	—0·5	—0·2
Chota Nagpur	+3·3	+3·2	+3·3
United Provinces of Agra and Oudh	—1·2	+0·3	—0·5
North-West Frontier Province and Punjab	—3·3	+3·1	—0·1
Sind	—0·8	+9·0	+4·1
Rajputana	—0·5	+4·2	+1·9
Gujarat	+0·3	+3·1	+1·7
Central India	+1·2	+2·8	+2·0
Central Provinces	+4·5	+2·8	+3·7
Berar	+4·0	+5·3	+4·7
West Coast	+2·1	+1·4	+1·8
Bombay Deccan	+3·8	+4·1	+4·0
Mysore	+2·4	+1·1	+1·8
Madras Coast	+0·6	0	+0·3
Madras Deccan	+3·7	+1·8	+2·8
South India	—0·7	—0·5	—0·6

The above shows that the mean temperature was in defect over Assam, Bihar, the United Provinces, the Punjab and the south of the Peninsula and was in excess elsewhere, the maximum excess having been reported from Berar, Sind and the Bombay Deccan. The principal local variations of temperature during these four days were shown (1) at Jacobabad on the 23rd when the night temperature was extraordinarily high. This is shown below :—

STATION.	VARIATION FROM NORMAL OF		
	Maximum temperature, 23rd October.	Minimum temperature 23rd October.	Mean temperature, 23rd October.
	°	°	°
Jacobabad	—1·8	+18·1	+8·2

(2) in the Madras districts on the 24th, where, owing to heavy rain, very low day temperatures were recorded, data for which are given in the following table :—

STATION.	VARIATION FROM NORMAL OF		
	Maximum temperature, 24th October.	Minimum temperature, 24th October.	Mean temperature, 24th October.
	°	°	°
Madras	—10·2	—0·8	—5·5
Tinnevelly	—10·0	—2·9	—6·5
Cuddalore	—7·4	—0·7	—4·1
Coimbatore	—6·0	—0·5	—3·3
Trichinopoly	—5·7	+0·3	—2·7

and (3) the Brahmaputra Valley, where, also owing to rain, low day and night temperatures were registered. The following gives data for Sibsagar :—

STATION.	VARIATION FROM NORMAL OF		
	Maximum temperature, 24th October.	Minimum temperature, 24th October.	Mean temperature, 24th October.
	°	°	°
Sibsagar	—8·6	—5·6	—7·1

From the 25th to the 28th the general conditions of temperature, relatively to the normal, were generally similar to those prevailing in the preceding period, except that the area of greatest excess generally lay to the north-westward over north Bombay. The following gives comparative data for the 27th as illustrative of this period :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 27th October.	Mean minimum temperature, 27th October.	Mean daily temperature, 27th October.
	°	°	°
Burma	+1·1	0	+0·6
Assam	—3·7	—1·2	—2·5
Bengal	—2·8	—0·1	—1·5
Orissa	—0·6	+2·6	+1·0
Bihar	—0·5	+0·7	+0·1
Chota Nagpur	+0·1	+2·0	+1·1
United Provinces of Agra and Oudh	—1·3	+1·6	+0·2
North-West Frontier Province and Punjab.	—5·4	+2·7	—1·4
Sind	+1·0	+4·8	+2·9
Rajputana	—1·7	+3·3	+0·8
Gujarat	+2·2	+4·0	+3·1
Central India	—0·2	+2·8	+1·3
Central Provinces	+0·7	+3·3	+2·0
Berar	+0·1	+5·7	+2·9
West Coast	—1·3	+0·9	—0·2
Bombay Deccan	—3·3	+3·9	+0·3
Mysore	—0·2	+0·1	—0·1
Madras Coast	—0·6	+0·8	+0·1
Madras Deccan	—0·5	+1·0	+0·3
South India	—6·3	—0·9	—3·6

The principal local changes of temperature during this period occurred over the Punjab and the south of the Peninsula. A few scattered showers were received over the Upper India hills and plains on the 25th and heavy snow and rain fell at Leh. These showers were followed by a wave of cold weather over the Punjab, due to very low day temperatures. The following gives comparative data for those stations at which the depression of the day temperature amounted to more than 8·0° between the 25th and 28th :—

DATE.	STATION.	VARIATION FROM NORMAL OF		
		Maximum temperature of date.	Minimum temperature of date.	Mean temperature of date.
		°	°	°
25th October	Umballa	—14·8	—3·4	—9·1
	Lahore	—13·8	+6·5	—3·7
	Khushab	—13·4	+1·3	—6·1
	Delhi	—11·0	—3·2	—7·1
	Roorkee	—11·0	—1·4	—6·2
	Sialkot	—10·9	+4·8	—3·1
	Dehra Dun	—10·9	—1·6	—6·3
	Meerut	—10·4	+0·8	—4·8
	Montgomery	—9·4	—0·4	—4·9
26th „	Umballa	—13·4	—2·5	—8·0
	Dehra Dun	—11·1	—3·2	—7·2
	Lahore	—10·3	+3·1	—3·6
	Roorkee	—10·2	+1·1	—4·6
	Delhi	—9·1	—1·7	—5·4
	Montgomery	—9·1	+2·1	—3·5
27th „	Do.	—8·8	+1·6	—3·6

Steady moderate to heavy rain also fell over the Madras coast and South India during this time, and the mean temperature was considerably below the normal. The following gives data from the 25th to the 28th for these two divisions :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	25th October.	26th October.	27th October.	28th October.
	°	°	°	°
Madras Coast	—1·3	—0·9	+0·1	—1·9
South India	—3·4	—1·8	—3·6	—0·7

Between the 29th and the close of the month the principal feature of the temperature conditions was the very low temperatures which, accompanying the heavy rainfall of the cyclone of this period, appeared over the eastern half of the Peninsula and thence extended into the Central

Provinces and right across the Peninsula. The area and extent of this depression of temperature are shown in the following table which gives comparative data for the divisions in the Peninsula and the Central Provinces from the 29th to the 31st :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	29th October.	30th October.	31st October.
	°	°	°
Central India	—0·4	—1·5	+1·8
Central Provinces	+1·0	—1·5	—0·9
Berar	+1·5	+1·6	—7·1
West Coast	+0·6	—0·1	+0·2
Bombay Deccan	+0·8	—1·4	—1·6
Mysore	—4·7	—3·8	—0·8
Madras Coast	—4·5	—2·8	—1·5
Madras Deccan	—3·8	—6·2	—3·4
South India	—2·8	+0·7	—0·1

Owing to the cloudy sky the mean night or minimum temperatures were almost everywhere, and almost throughout the period, above the normal, while the day or maximum temperatures were as generally below. The deficiency was frequently very large and equalled or exceeded 10° at the following stations on the following dates :—

Date.	Station.	Variation from normal maximum temperature of date.
		°
29th October	Cuddapah	—12·6
	Bangalore	—12·3
	Waltair	—10·9
	Masulipatam	—10·0
	Salem	—10·0
30th „	Hyderabad Deccan	—14·9
	Bellary	—14·8
	Raichur	—14·1
	Bijapur	—12·4
	Waltair	—12·1
	Kurnool	—11·9
	Chitaldroog	—11·1
	Cocanada	—10·7
	Sholapur	—10·6
31st October	Akola	—18·8
	Amraoti	—18·4
	Nagpur	—14·9
	Seoni	—14·9
	Ahmednagar	—14·2
	Hyderabad Deccan	—14·1
	Bijapur	—11·2
	Raichur	—10·9

On the 31st disturbed weather in the north-west gave showers to Baluchistan and the North-West Punjab. These showers occasioned a rapid fall of temperature at Murree, Cherat, Peshawar, Quetta and Chaman, and reduced temperature in that area to considerably below the normal. At the same time, over the Punjab and Sind, temperature was rising and the mean temperature was considerably above the normal, so that there were large contrasts of temperature over North-West India.

At the extra Indian stations, for which normals are available, the variations of the maximum, minimum and mean temperatures for the month of October 1902 were as follows :—

Station.	Maximum variation.	Minimum variation.	Mean variation.
	°	°	°
Kalat	+1·9	—1·7	+0·1
Gilgit	+2·0	—0·5	+1·3
Kabul	+2·7	+0·6	+1·7
Jask	—1·7	+1·1	—0·3
Bushire	—2·6	—1·6	—2·1
Muscat	—0·1	+0·7	+0·3
Aden	—0·5	+0·6	+0·1
Perim	+0·7	+0·2	+0·5
Zanzibar	—0·1	+0·1	0

The above shows that, with the doubtful exception of Perim, the high day temperatures which were noticed over Baluchistan and the Indus Valley on the mean of the month were confined to Afghanistan, Baluchistan and Further Kashmir, and that further to the westward, over Persia and Arabia, the mean day temperatures were everywhere below the normal. The mean minimum or night temperatures were less regular. The nights, on the mean of the month, were cooler than usual at Kalat, Gilgit and Bushire and were warmer than usual elsewhere.

Winds.

There were two, and perhaps three, cyclonic storms in the Bay region and two in the Arabian Sea during October 1902. The first storm over the Bay was a small storm over the north of the Bay in the first week, the second over the Bay was an ill-defined depression which crossed the centre of the Bay between the 18th and the 22nd which, though never developing to a serious storm, ushered in the autumnal rains to the Madras coast, and the third over the Bay was a well-defined storm which struck the Madras coast on the 28th. During the existence of these storms in the Bay the winds were cyclonic over considerable areas, but at other times the directions were irregular and very variable.

At the Bay Islands and on the Burma coast the winds departed largely from the normal directions. At Port Blair the direction was nearly easterly, while at Rangoon it was between east and north-east instead of south-easterly. The following gives data:—

Station.	Mean wind direction.	
	Actual, October, 1902.	Normal, October.
	°	°
Port Blair	S 81 E	S 1 W
Rangoon	N 81 E	S 36 E
Diamond Island	N 66 E	S 56 E
Akyab	N 54 E	S 64 E

The winds were generally steadier than usual in this area—more particularly at Rangoon—and the velocity was above the average at Diamond Island and Akyab, though at Rangoon it was considerably below.

The following gives comparative data of steadiness and velocity:—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
Port Blair	29	25	+ 4	147	150	— 3
Rangoon	58	28	+30	28	74	—46
Diamond Island	42	17	+25	212	173	+39
Akyab	8	8	0	71	59	+12

In Bengal and Orissa also the wind's direction varied considerably from the normal. At Chittagong there were evidences of the north-east wind which was so pronounced on the Burma coast, while at Calcutta and Saugor Island the wind was nearly westerly, and at False Point south-westerly. It will be seen from the following comparative data that these directions differed largely from the normal:—

Station.	Mean wind direction.	
	Actual, October, 1902.	Normal, October.
	°	°
Chittagong	N 13 E	N 11 W
Calcutta	N 76 W	N 44 W
Saugor Island	S 87 W	N 8 W
False Point	S 45 W	N 50 E

The wind was, however, steadier than the normal, except at False Point, while the velocity was very nearly the average. This is shown below:—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
Chittagong	23	13	+10	73	66	+7
Calcutta	39	11	+28	68	67	+1
Saugor Island	27	13	+14	168	174	—6
False Point	8	22	—20	124	145	—21

In the Gangetic Plain and Chota Nagpur the wind was, except at Darbhanga, a few degrees more westerly than usual. The steadiness was greater than usual, and at Allahabad the velocity was higher. The following gives data:—

Station.	Mean steadiness.			Mean Wind direction.			Mean wind velocity in miles per diem.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Westerly deflection.	Actual, October, 1902.	Normal October.	Variation of actual from normal, October, 1902.
				°	°				
Hazaribagh	52	24	+28	N 42 W	N 35 W	+ 7	117	124	— 7
Allahabad	34	18	+16	N 66 W	N 49 W	+17	89	66	+23
Darbhanga	27	1	+26	S 72 E	S 4 W	...	32	52	—20

In the Upper Sub-Himalayas there is usually an unsteady north-westerly wind during October, but during the month under review the winds were very variable in direction and in most places were even more unsteady than usual, though the velocity was about the average. The following gives data:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
				°	°			
Dehra Dun . .	39	21	+18	S 68 W	N 39 W	18	33	—15
Roorkee . .	2	6	— 4	S 87 E	S 6 E	36	31	+ 5
Meerut . .	16	35	—19	N 70 W	N 55 W	22	31	— 9
Lahore . .	8	11	— 3	N 28 W	N 7 W	42	39	+ 3
Ludhiana . .	11	22	—11	S 11 E	N 39 W	35	26	+ 9

In the Indus Valley also the wind direction was very variable, while the velocity was below the normal. This is shown below:—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, October, 1902.	Normal, October.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	°	°			
Peshawar . . .	N 8 E	N 52 E	38	60	—22
Jacobabad . . .	S 66 E	S 27 E	34	54	—20
Kurrachee . . .	S 60 W	S 72 W	204	235	—31

In Eastern Rajputana the wind was more westerly and lighter than usual, while in Southern Rajputana a moderately steady southerly wind prevailed instead of the normal unsteady east-by-north wind. The following gives data for Jaipur and Deesa:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
				°	°			
Jaipur . . .	34	37	— 3	N 80 W	N 22 W	62	77	—15
Dessa . . .	24	12	+12	S 6 W	N 82 E	124	161	—37

The preceding data show that the wind was unusually westerly over the Gangetic Plain and the delta of Bengal and unusually north-easterly on the Burma coast, while in other places the directions were even more variable than usual.

The following gives comparative data of steadiness and of velocity of the air movement in the different divisions of Northern India, the Bay Islands and Burma on the mean of the month:—

Province or Division.	Mean steadiness.			Mean wind velocity miles per diem.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal October.	Vaiation of actual from normal, October, 1902.
Bay Islands . .	29	25	+ 4	147	150	— 3
Burma . . .	36	18	+18	104	102	+ 2
Bengal . . .	30	12	+18	103	102	+ 1
Orissa . . .	2	22	—20	124	145	—21
Bihar . . .	27	1	+26	32	52	—20
Chota Nagpur .	52	24	+28	117	124	— 7
United Provinces .	23	20	+ 3	41	40	+ 1
N.-W. F. Province and Punjab.	20	22	— 2	38	42	— 4
Sind . . .	34	33	— 1	119	145	—26
Rajputana . .	29	25	+ 4	93	119	—26

In the Deccan the wind was generally more easterly than usual. At Hyderabad, Khandwa and Sholapur it blew from the south of east, and at the remaining stations from the north of east, but at nearly all places there was considerably increased easting. This is shown below:—

Station.	Mean wind direction.		
	Actual, October, 1902.	Normal, October.	Easterly deflection.
	°	°	
Belgaum	N 79 E	N 54 E	+25
Sholapur	S 79 E	N 55 E	...
Akola	N 89 E	N 16 E	+73
Buldana	N 68 E	N 24 E	+44
Khandwa	S 84 E	N 22 E	...
Nagpur	N 78 E	N 37 E	+41
Hyderabad (Deccan) . . .	S 74 E	S 80 E	— 6

The steadiness was greater than usual at Belgaum, Sholapur, and Hyderabad, and less than usual at Nagpur, while the velocity varied irregularly from the normal.

The following gives comparative data of steadiness and velocity:—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
Belgaum	42	13	+29	182	241	—59
Sholapur	58	22	+36	261	193	+68
Akola	25	32	— 7	70	83	—13
Buldana	44	49	— 5	108	125	—17
Khandwa	35	35	0	82	71	+11
Nagpur	31	49	—18	96	102	— 6
Hyderabad (Deccan)	43	33	+10	95	96	— 1

Along the West Coast the wind was unusually northerly. The following gives data:—

STATION.	MEAN WIND DIRECTION.		
	Actual, October, 1902.	Normal, October.	Northerly Deflection.
	°	°	
Bombay	N 3 E	N 14 E	+11
Karwar	N 39 W	N 76 W	+37

At Karwar the wind was very unsteady, as is shown below:—

STATION.	MEAN STEADINESS		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.
Karwar	17	63	—46

In South India, as in the Deccan, the wind's direction was unusually easterly. At Bangalore, Hassan and Madras the wind blew from the north of east, and at the remaining stations from the south of east. The following gives datah:—

STATION.	MEAN WIND DIRECTION.	
	Actual, October, 1902.	Normal, October.
	°	°
Salem	S 85 E	S 50 W
Chitaldroog	S 87 E	N 28 E
Bangalore	N 76 E	N 8 W
Hassan	N 74 E	N 42 E
Mysore	S 85 E	N 42 E
Madras	N 78 E	N 55 E
Bellary	S 86 E	N 42 E

The steadiness of this easterly wind was remarkable, but its velocity was generally low. This is shown in the following table:—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902	Actual, October 1902.	Normal October.	Variation of actual from normal, October, 1902.
	°					
Salem	45	29	+16	59	60	— 1
Chitaldroog	58	15	+43	134	143	— 9
Bangalore	64	8	+56	160	105	+55
Hassan	69	24	+45	58	63	— 5
Mysore	53	13	+40	160	185	—25
Madras	52	17	+35	110	118	— 8
Bellary	43	14	+29	95	104	— 9

The principal feature of the winds over the Peninsula was hence the increased easting in the direction. This easterly wind, as well as the north-easterly wind along the Burma coast, was apparently directly related to the anomalous distribution of pressure over the Peninsula and the Bay.

The following gives data of mean steadiness and velocity for the different divisions of the Peninsula :—

PROVINCE OR DIVISION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.	Actual October, 1902.	Normal October.	Variation of actual from normal, October, 1902.
Central Provinces .	33	42	− 9	89	87	+ 2
Berar . . .	35	41	− 6	89	104	−15
Bombay Deccan .	50	18	+32	222	217	+ 5
Madras Deccan .	43	24	+19	95	100	− 5
West Coast . .	25	47	−22	129	140	−11
Madras Coast .	52	17	+35	110	118	− 8
Mysore . . .	61	15	+46	128	124	+ 4
South India . .	45	29	+16	59	60	− 1

At Quetta the wind's direction, on the mean of the month, was exactly normal, but the steadiness and velocity were both low. The following gives data for this station :—

HILL STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
				°	°			
Quetta . .	18	44	−26	N 59 W	N 59 W	33	54	−21

At the hill stations in the Himalayas the wind was, as usual, variable in direction. At Leh the direction was normal, but at Srinagar, Kailang and Ranikhet there was more westing than usual, while at Katmandu and Darjeeling there was less. At Simla there was an abnormal northerly wind and at Chakrata a south-south-east wind. The steadiness was generally, though not universally, above the average. The velocity was excessive at Leh, Chakrata and Ranikhet, while in the Eastern Himalayas it was below the normal. The following gives comparative data :—

HILL STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM		
	Actual percentage, October 1902.	Normal percentage, October.	Variation of actual from normal, October 1902.	October Actual, 1902.	Normal, October.	Actual, October 1902.	Normal, October.	Variation of actual, from normal, October 1902.
				°	°			
Leh . . .	68	42	+26	S 54 W	S 55 W	54	44	+10
Srinagar . .	10	12	− 2	N 46 W	N 18 W	47	75	−28
Kailang .	72	64	+ 8	S 43 W	S 37 W	34	37	− 3
Simla . . .	23	15	+ 8	N 1 E	N 32 W	...	...	...
Chakrata .	64	32	+32	S 22 E	S 64 W	217	129	+88
Ranikhet . .	58	51	+ 7	S 75 W	S 55 W	72	49	+23
Katmandu . .	16	38	−22	N 76 W	W	12	16	− 4
Darjeeling . .	37	21	+16	S 42 W	S 78 W	61	85	−24

At the central hill stations the wind's direction was also variable, but the velocity was generally high. This is shown below :—

HILL STATION.	MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, October, 1902.	Normal, October.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	°	°			
Mount Abu . .	S 13 W	N 40 W	116	109	+ 7
Pachmarhi . .	N 81 W	N 25 E	65	75	−10
Chikalda . . .	N 52 E	N 2 E	168	139	+29

At Aden and Perim the wind was south-easterly and more southerly than usual, but both the velocity and steadiness were lower than usual. The following gives data :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Southerly deflection.	Actual, October, 1902.	Normal, October.	Variation of actual, from normal, October, 1902.
				°	°				
Aden . .	52	56	− 4	S 56 E	S 80 E	+24	294	316	−22
Perim .	71	81	−13	S 51 E	S 62 E	+11	418	444	−26

In the South-East Trades region the winds varied at different stations. Thus at Zanzibar the wind was more easterly, steadier and stronger than usual, while at the Seychelles, on the contrary, the wind was less easterly, less steady and weaker than the average. This is shown below :—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, October, 1902.	Normal percentage, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Easterly deflection.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
				°	°				
Zanzibar .	64	53	+11	S 19 E	S 3 E	+16	156	120	+36
Seychelles .	40	59	−19	S 14 E	S 44 E	−30	176	183	− 7

Humidity and Cloud.

The variations in the relative humidity conditions over India were fairly broadly marked. Over North-Western India and the Peninsula, with the exception of the West Coast and the Bombay Deccan, the relative humidity was in excess of the normal on the mean of the month, while over the east of the Bay, Burma, North-East India, the Gangetic plain and part of the Central Provinces the humidity was in defect. The following gives the variations of humidity of 5 per cent. or more and shows the areas of maximum dryness and dampness:—

STATION.	RELATIVE HUMIDITY.		
	Actual October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	%	%	
Sholapur	53	62	−9
Calcutta	74	81	−7
Saugor Island	75	81	−6
Lahore	58	47	+11
Peshawar	55	47	+8
Deesa	48	42	+6
Roorkee	63	58	+5
Belgaum	77	72	+5

Over Burma and the Bay Islands the variations of the mean absolute humidity from the normal were irregular, but the mean temperature over this area was in considerable excess and the relative humidity was everywhere deficient. This is shown below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Port Blair	·932	·911	+·021	82	86	−4
Rangoon	·875	·888	−·013	81	84	−3
Damond Island	·879	·867	+·012	81	83	−2

In Bengal and Orissa, where the winds were unusually westerly, blowing from a dry land area, the absolute humidity was below the normal, and as this condition was accompanied with an increased temperature, the relative humidity was in considerable defect. The following gives comparative data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Chittagong	·804	·848	−.044	82	83	−1
Calcutta	·779	·819	−·040	74	81	−7
Saugor Island	·834	·857	−·023	75	81	−6
False Point	·807	·825	−·018	75	79	−4

Similar conditions, but in a modified form, prevailed over the Gangetic Plain and Chota Nagpur, where also the wind was more westerly than usual. The following gives data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, October, 1902	Normal, October.	Variation of actual from normal, October, 1902.	Actual October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Hazaribagh	·513	·539	−·027	60	64	−4
Darbhanga	·757	·757	0	76	75	+1
Allahabad	·612	·620	−·008	63	65	−3

In the Upper Sub-Himalayas the conditions changed. The absolute humidity was in excess of the normal at all stations, while the mean temperature was generally below the normal, so that the relative humidity was in slight to large excess, with the local exception of Ludhiana:— The following gives data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Dehra Dun	·469	·450	+·019	65	62	+3
Roorkee	·506	·494	+·012	63	58	+5
Meerut	·521	·493	+·028	61	57	+4
Lahore	·551	·442	+·109	58	47	+11
Ludhiana	·469	·464	+·005	52	53	−1

In the Indus Valley the air was very damp, the absolute humidity having been greater than in the preceding area, but the temperature in the Indus Valley was abnormally high, and hence the excess of the relative humidity was less than in the Upper Sub-Himalayas. This is shown below :—

Station.	Absolute humidity.			Relative humidity.		
	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Peshawar . .	·443	·363	+·080	55	47	+8
Kurrachee . .	·780	·646	+·134	66	63	+3

Rajputana participated in the general excess of dampness over North-West India, so that, though the temperature was in excess, the relative humidity was also above the normal. The following gives data for Jaipur and Deesa :—

Station.	Absolute humidity.			Relative humidity.		
	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Jaipur . . .	·457	·406	+·051	46	43	+3
Deesa . . .	·522	·440	+·082	48	42	+6

The following gives comparative data of the mean temperature and the absolute and relative humidities of the Bay Islands, Burma and the different divisions of Northern India :—

Province or Division.	Variation from normal of mean temperature, October, 1902.	Absolute humidity.			Relative humidity.		
		Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	°	"	"	"	%	%	
Bay Islands (Port Blair).	+1·8	·932	·911	+·021	82	86	−4
Burma . .	+0·2	·877	·878	−·001	81	84	−3
Bengal . .	+0·4	·806	·842	−·036	77	82	−5
Orissa . .	+0·7	·807	·825	−·018	75	79	−4
Bihar . .	−1·2	·757	·757	0	76	75	+1
Chota Nagpur	+0·6	·512	·539	−·027	60	64	−4
United Provinces.	−1·4	·527	·514	+·013	63	61	+2
N.W.F. Province and Punjab.	+1·6	·488	·423	+·065	55	49	+6
Sind . .	+3·9	·780	·646	+·134	66	63	+3
Rajputana .	+2·0	·490	·423	+·067	47	42	+5

In the Deccan the absolute humidity varied irregularly at the different stations. At Sholapur and Hyderabad the absolute humidity was in defect of the average, while the mean temperature was in excess, so that the relative humidity was also in defect; at Buldana the absolute humidity was normal, but the temperature excessive, so that the relative humidity was in defect, while at Akola and Nagpur the air was slightly damper than usual, the mean temperature a little above the normal and the relative humidity consequently exactly normal. These varying conditions are shown in the following table :—

Station.	Absolute humidity.			Relative humidity.		
	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October 1902.
	"	"	"	%	%	
Belgaum . .	·624	·589	+·035	77	72	+5
Sholapur . .	·538	·579	−·041	53	62	−9
Akola . . .	·591	·571	+·020	60	60	0
Buldana . .	·523	·523	0	57	59	−2
Khandwa . .	·585	·540	+·045	59	57	+2
Nagpur . . .	·586	·581	+·005	60	60	0
Hyderabad . .	·642	·649	−·007	66	70	−4

At the west coast stations the air was damper than the average, but the mean temperature was excessive and the relative humidity below the normal. The following gives data :—

Station.	Absolute humidity.			Relative humidity.		
	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Bombay . .	·868	·840	+·028	76	80	−4
Karwar . . .	·824	·815	+·009	80	83	−3

Over South India the air was damper—in places considerably so—than the average, while the temperature, though higher than usual at several stations, varied only slightly from the normal, so that, except at Mysore and Hassan, the

relative humidity was generally above the normal. The following gives data :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Salem . . .	·786	·751	+·035	80	76	+4
Chitaldroog . .	·597	·566	+·031	68	65	+3
Bangalore . .	·597	·592	+·005	76	75	+1
Hassan . . .	·580	·579	+·001	73	75	—2
Mysore . . .	·599	·602	—·003	70	71	—1
Madras . . .	·864	·833	+·031	84	80	+4
Bellary . . .	·625	·621	+·004	64	63	+1

In the following table the mean comparative data of temperature, absolute humidity and relative humidity for the different divisions of the Peninsula are given :—

PROVINCE OR DIVISION.	Variation from normal of mean temperature, October, 1902.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
		Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	°	"	"	"	%	%	
Central Provinces.	+1·7	·585	·561	+·025	60	59	+1
Berar . .	+1·4	·557	·547	+·010	59	60	—1
Bombay Deccan.	+1·7	·581	·584	—·003	65	67	—2
Madras Deccan	+1·2	·634	·636	—·002	65	67	—2
West Coast .	+1·8	·846	·827	+·019	78	82	—4
Madras Coast .	—0·9	·864	·833	+·031	84	80	+4
Mysore . .	+0·6	·593	·582	+·011	72	72	0
South India .	—0·4	·786	·751	+·035	80	76	+4

At Quetta both the absolute and relative humidities were above the normal. This was likewise the case at Leh and as far east as Simla. The following gives data :—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Quetta . . .	·213	·186	+·027	48	41	+7
Leh . . .	·126	·100	+·026	48	40	+8
Srinagar . .	·360	·315	+·045	78	78	0
Kailang . .	·149	·134	+·015	54	50	+4
Simla . . .	·256	·246	+·010	62	52	+10

To the east of Simla conditions changed and the amount of vapour in the air became less than the normal on the mean of the month, though, owing to the very low temperature, the relative humidity was everywhere in excess. The following gives data :—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Ranikhet . .	·317	·328	—·011	64	61	+3
Katmandu . .	·446	·474	—·028	76	73	+3
Darjeeling . .	·342	·370	—·028	85	83	+2

On the plains the absolute humidity was in defect from Bengal to Bareilly and in excess from Dehra Dun to Peshawar, and at the level of the hills the absolute humidity was in defect from Darjeeling to Chakrata and in excess from Simla to Leh, so that the same hygrometric condition of the air prevailed at the elevation of the hills as at the level of the plains.

At the central hill stations both the absolute and relative humidities were in excess. The following gives data :—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Mount Abu . .	·380	·339	+·041	51	45	+6
Pachmarhi . .	·453	·439	+·014	63	61	+2
Chikalda . .	·505	·466	+·039	65	62	+3

At Aden the air was slightly damper than usual, but the mean temperature was in slight excess and the relative humidity was normal. This is shown below :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.	Actual, October, 1902.	Normal, October.	Variation of actual from normal, October, 1902.
	"	"	"	%	%	
Aden . . .	·743	·720	+·023	64	64	0

In Equatorial regions the air was everywhere damper than usual, while the mean temperature was generally in defect, so that the relative humidity was also in excess. The following gives data :—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
	"	"	"	%	%	
Zanzibar	·797	·771	+·026	80	78	+2
Seychelles	·812	·780	+·032	81	78	+3

The variations in the mean cloud amount are usually similar in general character to those of the humidity. In October 1902 some important differences in the relative distributions of the two elements were disclosed. One of the most important was the displacement southward of the maximum cloud variations as compared with the maximum humidity variations. Thus while the area of the maximum humidity variation lay over the Punjab, that of cloud lay over Rajputana and the Central Provinces, and the areas of minimum cloud variation lay over Mysore and the Arakan coast, while the areas of minimum humidity lay over the Bombay Deccan and the delta of Bengal.

The mean cloud amount of the month was slightly to considerably below the normal over the Bay Islands, Burma and the Chittagong division of Bengal. The following gives data in illustration :—

Station.	Mean cloud amount.		
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
Port Blair	4·8	6·0	—1·2
Rangoon	5·1	5·9	—0·8
Diamond Island	4·0	5·7	—1·7
Akyab	2·7	4·8	—2·1
Chittagong	3·5	4·4	—0·9

There was also less cloud than usual, though only to a small extent, across the Peninsula between Lats. 12° and 16°N. The following gives comparative data :—

Station.	Mean cloud amount.		
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
Bangalore	5·4	5·8	—0·4
Chitaldroog	5·6	6·0	—0·4
Karwar	4·2	4·5	—0·3
Bellary	6·3	6·5	—0·2
Madras	5·9	6·0	—0·1

There was likewise a trifling deficiency in the cloud amount over Orissa on the one side of the Peninsula and over Gujarat on the other. The following gives data for False Point and Deesa :—

Station.	Mean cloud amount.		
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
False Point	4·6	4·8	—0·2
Deesa	1·1	1·8	—0·7

In all other parts of India the sky was more cloudy than usual, the excess amounting to 1·0 or more at the stations for which comparative data are given below :—

Station.	Mean cloud amount.		
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
Akola	5·1	3·2	+1·9
Khandwa	4·0	2·4	+1·6
Jaipur	3·2	1·7	+1·5
Mysore	7·9	6·6	+1·3
Buldana	4·9	3·7	+1·2
Dehra Dun	2·4	1·2	+1·2
Peshawar	2·6	1·5	+1·1
Salem	6·9	5·8	+1·1
Allahabad	2·8	1·8	+1·0
Jacobabad	1·4	0·4	+1·0

At all the hill stations the cloud amount was in excess of the normal, though at both Darjeeling and Mount Abu this excess was very small. The extent of this increased cloudiness is shown in the following table :—

Hill Station.	Mean cloud amount.		
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
Quetta	2·0	0·6	+1·4
Simla	3·4	1·5	+1·9
Chakrata	3·6	1·7	+1·9
Katmandu	5·2	3·9	+1·3
Kailang	4·6	3·4	+1·2
Chikalda	4·9	3·7	+1·2
Pachmarhi	4·3	3·2	+1·1
Ranikhet	2·6	1·7	+0·9
Leh	4·4	3·8	+0·6
Srinagar	3·3	2·8	+0·5
Mount Abu	2·4	2·0	+0·4
Darjeeling	6·1	5·8	+0·3

The actual amount of cloud was least, on the mean of the month, at the following places in India :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
Jacobabad	1·4	0·4	+1·0
Ludhiana	1·3	1·0	+0·3
Deesa	1·1	1·8	—0·7
Meerut	1·0	0·7	+0·3
Lahore	0·8	0·7	+0·1

The sky was cloudiest, the mean amount of cloud amounting to 6·5 or more, over the south of the Peninsula. The following gives comparative data for the stations in this area :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
Mysore	7·9	6·6	+1·3
Hassan	7·1	7·1	0
Salem	6·9	5·8	+1·1
Periyakulam	6·7	...	...
Belgaum	6·5	5·6	+0·9

A very large excess of cloud was reported from Aden, and a moderate deficiency from Perim. The following gives comparative data :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
Aden	7·6	1·7	+5·9
Perim	0·2	1·2	—1·0

At Zanzibar and the Seychelles the sky was more clouded than usual, considerably so at the former and slightly so at the latter station. This is shown below :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.
Zanzibar	6·3	4·6	+1·7
Seychelles	6·4	6·2	+0·2

Rainfall.

The principal rainfall in the month of October is attributable to the retreating south-west monsoon current. This current in this month is practically confined to the Peninsula and the Bay area, so that over the whole of North-Western and Central India the average rainfall of the month is very light. Over this area the average rainfall is less than two inches, and diminishes in amount, westward to the Indus Valley, within which region it is less than two-tenths of an inch.

In the North and Central Deccan, the Central Provinces, Bengal and the greater part of Burma the month's rainfall averages between 2 inches and 5 inches, whilst in Lower Burma and the south of the Peninsula it ranges between 5 inches and 13 inches. The heaviest rainfall is, ordinarily, received along the Madras coast.

During the month under review, as mentioned above, the weather was somewhat more disturbed than usual over North-West India, so that Baluchistan, the Punjab and the adjoining parts of the United Provinces and of Rajputana received heavier rain than usual. In North-East India rain was received from the storm of the first three days of the month, but after the disappearance of this storm rain, to a considerable extent, ceased and the total rainfall of the month was less than usual. Over the Peninsula rain was received from the retreating south-west monsoon, accentuated by the cyclonic storm of the last few days of the month, while along the southern half of the west coast the rainfall was increased by the precipitation caused by the development of the storm of the 11th to 16th in the Arabian Sea.

The chief periods of rainfall were as follows :—

(1) The 1st to the 8th, when Burma, Bengal and Assam received at first heavy rain and subsequently showers from the first Bay storm and its residual disturbance of pressure.

(2) The 9th to the 15th, when the south and west of the Peninsula received daily rain connected with the development of a depression over the Arabian Sea.

(3) The 18th to the 20th, when parts of North-West India received rain from a cold weather storm.

(4) The 22nd to the end of the month, when the Peninsula and the central parts of the country received rain from the retreating south-west monsoon, accentuated by a cyclonic storm over the Bay and a second over the Arabian Sea.

The following table gives comparative rainfall data for the 57 rainfall divisions of India:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, October 1902.	Average normal, October.	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.
				Inches.	Inches.	Inches.
Burma	Tenasserim	7·1	11·9	4·44	9·49	−5·05
	Lower Burma (Deltaic)	7·5	9·9	5·12	6·23	−1·11
	Central do.	4·9	7·5	3·02	4·58	−1·56
	Upper do.	4·4	6·1	3·46	4·44	−0·98
	Arakan	4·1	9·0	5·23	8·50	−3·27
Bengal and Assam	Eastern Bengal	4·1	5·8	4·21	5·87	−1·66
	Assam (Surma)	5·4	6·9	6·21	6·66	−0·45
	Do. (Hills)	6·4	8·4	4·42	7·38	−2·96
	Do. (Brahmaputra)	5·6	6·0	3·25	4·55	−1·30
	Deltaic Bengal	3·0	5·3	1·67	4·52	−2·85
	Central do.	3·2	4·1	1·84	3·53	−1·69
	North do.	4·5	4·4	3·29	4·68	−1·39
	Bengal Hills	6·9	5·0	3·74	3·88	−0·14
	Orissa	1·9	6·2	1·19	5·88	−4·69
	Chota Nagpur	1·0	3·7	0·54	2·81	−2·27
	Bihar (South)	1·4	2·8	0·68	2·50	−1·82
	Do. (North)	2·8	2·7	1·44	2·71	−1·27
United Provinces of Agra and Oudh.	United Provinces (East)	0·9	2·1	0·30	2·39	−2·09
	Oudh (South)	0·2	1·5	0·08	1·66	−1·58
	Do. (North)	1·5	1·5	0·85	1·79	−0·94
	United Provinces (Central)	0·3	1·1	0·10	1·06	−0·96
	Do. do. (West)	0·5	0·5	0·21	0·41	−0·20
	Do. do. (East Sub-montane)	2·1	2·1	0·92	2·94	−2·02
	Do. do. (West do.)	1·4	0·7	0·83	0·75	+0·08
	Do. do. (Hills)	2·7	1·3	1·09	1·35	−0·26
Punjab and North-West Frontier Province.	Punjab (South-East)	1·0	0·4	0·33	0·23	+0·10
	Do. (South)	0·8	0·4	0·21	0·17	+0·04
	Do. (Central)	1·1	0·5	0·37	0·26	+0·11
	Do. (Sub-montane)	1·0	0·5	0·47	0·32	+0·15
	Do. (Hills)	2·4	1·1	0·92	0·74	+0·18
	Do. (North)	3·4	0·9	1·39	0·42	+0·97
	Do. (West)	0·5	0·2	0·17	0·08	+0·09
Bombay and Malabar Coast Districts (Madras).	Malabar	13·3	11·7	10·49	9·34	+1·15
	Travancore	18·0	...	15·42	...	...
	Madras (South-Central)	12·5	8·6	9·12	6·14	+2·98
	Coorg	14·0	...	8·14	...	...
	Mysore	11·0	8·1	8·83	5·50	+3·33
	Konkan	6·0	6·1	3·78	4·52	−0·74
	Bombay Deccan	7·3	6·3	4·30	4·42	−0·12
	Khandesh	3·4	3·0	1·47	1·92	−0·45
Central Provinces and Berar.	Berar	3·0	2·3	1·97	1·73	+0·24
	Central Provinces (West)	2·6	2·5	1·44	1·78	−0·34
	Do. (Central)	1·5	2·3	0·67	1·67	−1·00
	Do. (East)	0·7	2·8	0·39	2·04	−1·65
Bombay (North)	Gujarat	0·4	1·4	0·11	1·04	−0·93
	Kathiawar and Cutch	0·4	0·7	0·12	0·59	−0·47
	Sind	0	0	0	0·02	−0·02
	Baluchistan Hills	0·6	0·2	0·17	0·06	+0·11
Rajputana and Central India.	Central India (East)	1·6	1·1	0·79	0·88	−0·09
	Rajputana (East), Central India (West)	1·1	0·4	0·46	0·20	+0·26
	Do. (West)	0·2	0·1	0·06	0·07	−0·01
Madras	East Coast (North)	5·7	7·1	8·47	7·03	+1·44
	Madras (Central)	7·8	6·3	6·26	4·84	+1·42
	East Coast (Central)	12·5	8·1	15·68	8·68	+7·00
	Do. (South)	12·5	9·3	11·82	8·26	+3·56
	Madras (South)	13·9	8·6	13·24	6·81	+6·43

The above shows that the month's rainfall was 0·35 inch in defect on the mean of all divisions. It was in defect over Burma, Assam, Bengal, the United Provinces (with the exception of the west sub-montane division), the Konkan, the Bombay Deccan, Khandesh, the Central Provinces, North Bombay, the east of Central India and Western

Rajputana. The rainfall of the month was more than 50 per cent. in defect over the divisions for which comparative data are given below :—

DIVISION.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Deltaic Bengal	1·67	4·52	—2·85	— 63
Orissa	1·19	5·88	—4·69	— 80
Chota Nagpur	0·54	2·81	—2·27	— 81
South Bihar	0·68	2·50	—1·82	— 73
United Provinces, East	0·30	2·39	—2·09	— 87
South Oudh	0·08	1·66	—1·58	— 95
North „	0·85	1·79	—0·94	— 53
United Provinces, Central	0·10	1·06	—0·96	— 91
United Provinces, East Sub-montane.	0·92	2·94	—2·02	— 69
Central Provinces, Central	0·67	1·67	—1·00	— 60
Do., do., East	0·39	2·04	—1·65	— 81
Gujarat	0·11	1·04	—0·93	— 89
Kathiawar and Cutch	0·12	0·59	—0·47	— 80
Sind	0	0·02	—0·02	—100

Over the remainder of India, *viz.*, in the west sub-montane division of the United Provinces, over the Punjab, Baluchistan, Malabar, Mysore, the south-central division of Madras, Berar, the east of Rajputana and the west of Central India, and the east coast and the central and south divisions of Madras the rainfall of the month was in excess. Of the above divisions, the rainfall was in excess by more than 50 per cent in the following :—

DIVISION.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North Punjab	1·39	0·42	+0·97	+231
West „	0·17	0·08	+0·09	+113
Mysore	8·83	5·50	+3·33	+ 61
Baluchistan Hills	0·17	0·06	+0·11	+183
Rajputana, East, Central India, West.	0·46	0·20	+0·26	+130
East Coast, Central	15·68	8·68	+7·00	+ 81
Madras, South	13·24	6·81	+6·43	+ 94

The average actual rainfall of the month was *nil* in Sind, and 0·25 inch or less over South Oudh, the central and west divisions of the United Provinces, the south and west divisions of the Punjab, Gujarat, Kathiawar and Cutch, Baluchistan and Western Rajputana. Over these areas the weather was hence rainless or nearly so throughout the month. From these areas the amount of rain increased and the average actual amount was 15 inches in Travancore and the east coast central division, and 13 inches in south Madras.

In Burma there were daily but decreasing showers from the 1st to the 10th. From the 11th to the 14th there was practically no rain, except at a few places on the south coast. On the 15th, with slightly unsettled weather over the Bay, the showers increased and extended, and scattered falls of rain were reported up to the 24th, when rain ceased. There were no heavy falls, and the general rain of the province was below the normal. The following gives rainfall data for the Burma divisions :—

DIVISION.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Tenasserim	4·44	9·49	—5·05	—53
Lower Burma, Deltaic	5·12	6·23	—1·11	—18
Central Burma	3·02	4·58	—1·56	—34
Upper Burma	3·46	4·44	—0·98	—22
Arakan	5·23	8·50	—3·27	—38

The rainfall of the month was generally normal in the Surma Valley of Assam, but was short both on the hills and over the Brahmaputra Valley.

In the Surma Valley there was a burst of general rain between the 3rd and the 8th, during which the following amounts exceeding 3 inches in 24 hours were recorded :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
CACHAR	Jatinga Valley	3rd October	3·39
SYLHET	Lalakhal	„ „	3·13
	Sephinjuri Bal	„ „	3·06
	Adamtila	„ „	3·05
CACHAR	Paiding	4th „	5·88
	Haflong	„ „	5·11
	Mupa	„ „	4·40
	Nemotha	„ „	3·62
	Mahur Saddle	„ „	3·57
	Maibong	„ „	3·50
	Burkhola	„ „	3·46
	Badarpur	„ „	3·14
	Nemotha	5th „	3·44
SYLHET	Karimganj	„ „	3·41
CACHAR	Koyah	„ „	3·28

From the 9th to the 15th the weather was generally fine with a few scattered showers. On the 16th moderately general but light showers were received, after which the rainfall ceased. The following gives comparative data for the districts in this division:—

District.	Rainfall. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	6·84	6·73	+0·11	+ 2
Sylhet	5·33	6·60	—1·27	—19

On the hills there were light scattered showers till the 16th, when the rainfall practically ceased for the season. The general rainfall of the division was 40 per cent. below the average.

In the Brahmaputra Valley there was rain on the 3rd and 4th, again between the 9th and the 11th, and local showers on the 20th and 25th. The amounts received were generally light or small, or the rainfall of the month was below the normal. The following gives comparative data for the districts in this division:—

District.	Rainfall. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Goalpara	2·60	4·85	—2·25	—46
Kamrup	1·93	3·59	—1·66	—46
Darrang	3·74	4·88	—1·14	—23
Nowgong	3·10	4·01	—0·91	—23
Sibsagar	4·31	4·62	—0·31	— 7
Lakhimpur	3·83	5·46	—1·63	—30

In Bengal the month's rainfall was, except on the hills, considerably lighter than usual. In South-West Bengal there was moderate, fairly general rain between the 2nd and the 7th, but the following were the only falls exceeding 2 inches in 24 hours:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Khulna	Mollahat	3rd October	3·62
Nadia	Meherpur	,, ,,	3·40
Birbhum	Suri	,, ,,	3·25
Murshidabad	Berhampore	,, ,,	2·84
Howrah	Ulubaria	,, ,,	2·14
Jessore	Jessore	7th ,,	2·48

Scattered showers were received between the 15th and the 20th, but the amounts were small, and after the 20th the monsoon rainfall practically ceased. The following gives comparative data for the districts in this division:—

District.	Rainfall. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burdwan	1·37	3·36	—1·99	—59
Birbhum	1·29	3·89	—2·60	—67
Bankura	0·65	3·15	—2·50	—79
Midnapore	0·86	4·43	—3·57	—81
Hooghly	1·03	4·00	—2·97	—74
Howrah	1·51	3·79	—2·28	—60
24-Parganas	1·44	5·21	—3·77	—72
Calcutta	2·78	3·87	—1·09	—28
Nadia	2·84	4·04	—1·20	—30
Murshidabad	2·57	3·75	—1·18	—31
Jessore	2·53	4·45	—1·92	—43
Khulna	0·87	5·21	—4·34	—83

In North Bengal rain occurred under generally similar conditions. Rain fell between the 3rd and the 9th,—more particularly on the limiting dates,—when the following falls exceeding 2·00 inches in 24 hours were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Rangpur	Bhawaniganj	3rd October	3·96
Bogra	Sherpur	,, ,,	3·31
Bogra	Bogra	,, ,,	3·10
Rajshahi	Boalia	,, ,,	2·34
Jalpaiguri	Baxa	,, ,,	2·22
Bogra	Panchbibi	,, ,,	2·17
Dinajpur	Gangarampur	,, ,,	2·10
Rangpur	Saidpur	,, ,,	2·02
Jalpaiguri	Bhagatpur	6th ,,	3·14
Rangpur	Ulipur	8th ,,	3·20
Rangpur	Kurigaon	,, ,,	2·55
Dinajpur	Atwari	9th ,,	3·61
Darjeeling	Siliguri	,, ,,	2·72
Jalpaiguri	Jalpaiguri	,, ,,	2·25

There were also showers on the 16th, after which the rains ceased. The following gives comparative data for the districts in this division :—

DISTRICT.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Rajshahi	2·26	3·66	—1·40	—38
Dinajpur	2·73	3·48	—0·75	—22
Jalpaiguri	2·80	5·86	—3·06	—52
Darjeeling	4·06	4·10	—0·04	— 1
Cooch Behar	2·31	4·81	—2·50	—52
Rangpur	4·30	4·67	—0·37	— 8
Bogra	5·02	4·46	+0·56	+13
Pabna	3·21	4·19	—0·98	—23

East Bengal had only one burst of general rain, *viz.*, between the 3rd and the 11th. The rainfall was most general and heavy on the 3rd and 4th, when the following amounts exceeding 3 inches in 24 hours were recorded :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
CHITTAGONG	Kodala	3rd October	4·57
	Fenoa	,, ,,	3·40
NOAKHALI	Hatya	,, ,,	3·25
BACKERGUNGE	Bauphal	,, ,,	3·19
	Patuakhali	4th ,,	5·00
CHITTAGONG	Kutubdia	,, ,,	4·90
	Chittagong	,, ,,	4·31
TIPPERA	Comilla	,, ,,	4·16
CHITTAGONG	Cox's Bazar	,, ,,	3·70
NOAKHALI	Noakhali	,, ,,	3·62
TIPPERA	Laksam	,, ,,	3·23
CHITTAGONG	Satkania	,, ,,	3·11
BACKERGUNGE	Bhola	,, ,,	3·07
CHITTAGONG HILL TRACTS.	Barkal	,, ,,	3·05

After the 11th the season's rainfall ceased and fine weather was experienced. The rainfall was hence short of the normal, as is shown by the following comparative data for the districts in this division :—

DISTRICT.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dacca	1·78	4·26	—2·48	—58
Mymensingh	3·41	5·06	—1·65	—33
Faridpur	1·30	4·39	—3·09	—70
Backergunge	4·04	6·38	—2·34	—37
Tippera	4·24	4·49	—0·25	— 6
Noakhali	4·92	7·52	—2·60	—35
Chittagong	5·71	7·62	—1·91	—25
,, Hill Tracts	4·78	7·38	—2·60	—35

Bihar experienced showery weather between the 3rd and the 10th, and again between the 15th and the 19th, after which the weather cleared and was fine till the end of the month. The showers were generally light and only equalled or exceeded 1·50 inches at the following places on the following dates :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
SONTHAL PARGANAS	Assenboni	2nd October	1·68
MUZAFFARPUR	Sitamarhi	3rd ,,	2·49
MALDA	Malda	5th ,,	1·79
DARBHANGA	Roserha	6th ,,	2·15
MONGHYR	Gogri	18th ,,	1·88
SARAN	Basantpur	19th ,,	1·50

The general rainfall of the division was light, as is shown by the following comparative data for the different districts :—

DISTRICT.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Patna	0·52	2·66	—2·14	—80
Gaya	0·27	2·27	—2·00	—88
Shahabad	0·50	2·63	—2·13	—81
Saran	1·10	2·67	—1·57	—59
Champaran	1·02	3·28	—2·26	—69
Muzaffarpur	1·62	2·61	—0·99	—38
Darbhanga	2·34	2·16	+0·18	+ 8
Monghyr	1·41	2·49	—1·08	—43
Bhagalpur	1·60	2·54	—0·94	—37
Purnea	1·40	2·86	—1·46	—51
Malda	2·43	3·39	—0·96	—28
Sonthal Parganas	1·47	3·15	—1·68	—53

In Orissa very little rain was received. There were scattered showers on the 3rd, 4th and 5th, on the 18th and 19th and between the 25th and 27th. The only falls exceeding 2 inches in 24 hours were as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Puri . . .	Ranpur . . .	4th October .	2·12
Angul . . .	Bissipara . . .	26th ,, .	2·37

The general rainfall of the division was very light, as is shown by the following comparative data for the different districts :—

District.	Rainfall			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuttack	1·01	6·19	−5·18	−84
Balasore	1·18	5·42	−4·24	−78
Puri	1·46	7·21	−5·75	−80

Chota Nagpur received only occasional scattered showers, and the month's rainfall was very deficient. The following gives comparative data for the districts :—

District.	Rainfall			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Hazaribagh	0·86	3·13	−2·27	−73
Ranchi	0·71	2·63	−1·92	−73
Palamau	0·24	2·69	−2·45	−91
Manbhum	1·13	2·62	−1·49	−57
Singhbhum	0·15	2·79	−2·64	−95

Oudh received showers on the 1st, 2nd and 3rd, on the 15th and on the 20th and 21st, but the falls were light and scattered and the rainfall short of the normal. The following gives data for the districts :—

District.	Rainfall			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Fyzabad . . .	1·17	2·73	−1·56	− 57
Gonda . . .	1·28	1·91	−0·63	− 33
Bara Banki . . .	0·28	1·41	−1·13	− 80
Bahraich . . .	0·61	1·67	−1·06	− 63
Sitapur	0·96	1·23	−0·27	− 22
Kheri	0·72	1·45	−0·73	− 50
Sultanpur . . .	0·14	2·46	−2·32	− 94
Partabgarh . . .	0·01	2·20	−2·19	−100
Rai Bareli . . .	0·06	1·62	−1·56	− 96
Unao	0	1·21	−1·21	−100
Lucknow . . .	0·01	1·23	−1·22	− 99
Hardoi	0·25	1·26	−1·01	− 80

The south-east of the United Provinces had light showers between the 3rd and 5th and on the 21st, but the total amount was small, as is shown by the data of the different districts :—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inch.	Inches.	Inches.	
Ghazipur	0·85	2·54	−1·69	−67
Benares	0·11	2·16	−2·05	−95
Jaunpur	0·29	2·92	−2·63	−90
Mirzapur	0·31	2·40	−2·09	−87
Allahabad	0·12	2·09	−1·97	−94

The central division had a few showers in the first week of the month, after which the season's rainfall ceased. The

total was very short of the normal, as is shown by the data for the districts :—

DISTRICT.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inch.	Inches.	Inches.	
Banda	0·14	1·96	—1·82	—93
Fatehpur	0·16	1·57	—1·41	—90
Hamirur	0·09	0·99	—0·90	—91
Cawnpore	0·01	1·06	—1·05	—99
Jalaun	0·04	0·66	—0·62	—94
Etawah	0·35	0·98	—0·63	—64
Farrukhabad	0·14	0·93	—0·79	—85
Mainpuri	0·01	0·86	—0·85	—99
Etah	0·12	0·67	—0·55	—82

The west division received only a few scattered showers during the month, except in the case of the Meerut district, which reported general rain on the 20th. The following gives data for the districts in this division :—

DISTRICT.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Jhansi	0·10	0·77	—0·67	— 87
Agra	0·01	0·46	—0·45	— 98
Muttra	0·08	0·34	—0·26	— 76
Aligarh	0·03	0·51	—0·48	— 94
Bulandshahr	0·16	0·35	—0·19	— 54
Meerut	0·73	0·34	+0·39	+115

The sub-montane division received scattered and light showers between the 1st and the 5th and general moderate rain on the 19th and 20th. The following amounts exceeding 1·50 inches were recorded during this latter period :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
NAINI TAL	Kilpuri	19th October	1·83
BAREILLY	Oganpur	,, ,,	1·58
DEHRA DUN	Mussooree	,, ,,	1·55
PILIBHIT	Amaria	20th ,,	2·55
DEHRA DUN	Chakrata (Tahsil)	,, ,,	1·98
	Chakrata (Observatory)	,, ,,	1·60

The rainfall of this division was irregularly distributed, as is shown by the following data for the different districts :—

DISTRICT.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Pilibhit	1·80	1·14	+0·66	+ 58
Shahjahanpur	0·93	1·10	—0·17	— 15
Budaun	0·50	0·89	—0·39	— 44
Bareilly	0·91	1·13	—0·22	— 19
Moradabad	0·63	0·90	—0·27	— 30
Bijnor	0·47	0·63	—0·16	— 25
Muzaffarnagar	0·27	0·29	—0·02	— 7
Saharanpur	0·28	0·34	—0·06	— 18
Dehra Dun	1·68	0·67	+1·01	+151
Almora	0·97	1·60	—0·63	— 39
Garhwal	1·24	0·88	+0·36	+ 44
Naini Tal	1·09	1·48	—0·39	— 26

In the north-east division of the United Provinces there were light showers at the commencement of the month and general showers between the 19th and 21st. The following gives comparative data for the month for the districts in this division :—

DISTRICT.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Gorakhpur	1·29	3·19	—1·90	—60
Basti	0·66	2·91	—2·25	—77
Azamgarh	1·23	2·62	—1·39	—53
Ballia	0·10	3·02	—2·92	—97

The Punjab had generally excessive rain. In the South Punjab showers fell on the 9th, 18th and 25th.

They were not heavy, as is shown by the following data for the districts which received rain :—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Hissar	0·17	0·19	—0·02	—11
Ferozepore	0·19	0·17	+0·02	+12

In the central Punjab the showery periods were generally similar and the rainfall of the month was on the whole heavier than usual. The following gives data for the districts reporting rain :—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Lahore	0·47	0·24	+0·23	+96
Gujranwala	0·24	0·20	+0·04	+20
Gujarat	0·31	0·37	—0·06	—16
Jhelum	0·34	0·29	+0·05	+17

In the submontane division rain fell on the 20th, 21st and 25th. The only heavy fall was at Nawashahr (Jullundur) on the 21st, when 3·80 inches were recorded. The following gives comparative data for the districts which received rain :—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inch.	Inch.	
Ludhiana	0·24	0·44	—0·20	— 46
Jullundur	1·03	0·28	+0·75	+268
Hoshiarpur	0·69	0·30	+0·39	+130
Gurdaspur	0·20	0·38	—0·18	— 47
Amritsar	0·19	0·27	—0·08	— 30
Sialkot	0·22	0·31	—0·09	— 29

In the hills there occurred scattered showers until the 26th, when the rainfall ceased. In the north-west division there were showers on the 2nd and 3rd, the 18th, the 22nd and the 31st, and the total rainfall considerably exceeded the normal. The following gives data for the Rawalpindi district :—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Rawalpindi	0·86	0·58	+0·28	+48

In the west division there were a few trifling showers about the commencement and middle of the month, and the small total of the month was slightly exceeded, except in Shahpur and Muzaffargarh. The following gives data for the districts :—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Mianwali	0·10	0·04	+0·06	+150
Shahpur	0·11	0·11	0	0
Jhang	0·29	0·09	+0·20	+222
Dera Ghazi Khan	0·04	0·03	+0·01	+ 33
Muzaffargarh	0	0·04	—0·04	—100
Mooltan	0·07	0·04	+0·03	+ 75

The North-West Frontier Province reported occasional scattered showers between the 1st and 22nd, and fine weather from the 22nd to the end of the month. The following gives comparative data for the districts in this Province :—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Peshawar	1·04	0·23	+0·81	+352
Hazara	3·20	0·88	+2·32	+ 264
Kohat	1·10	0·34	+0·76	+ 224
Bannu	0·37	0·09	+0·28	+311
Dera Ismail Khan	0·36	0·03	+0·33	+1,100

In Baluchistan there occurred a showery period between the 22nd and 24th. The showers were nowhere heavy, but the total rainfall of the month largely exceeded the normal, as is shown below:—

Division.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Baluchistan . . .	0·17	0·06	+0·11	+183

In Kashmir occasional showers were received throughout the month. They were heaviest on the two last days, as is shown by the following data which give the falls exceeding 1 inch in 24 hours during the month:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kashmir . .	Domel . . .	3rd October .	1·48
	Leh	25th ,, .	1·08
	Karnah . . .	30th ,, .	1·64
	Uri	,, ,, .	1·42
	Domel . . .	,, ,, .	1·40
	Uri	31st ,, .	2·03
	Utarmachhipore .	,, ,, .	1·50

Western Rajputana received occasional local showers of no importance, while eastern Rajputana had two well-marked showery periods, one between the 15th and 18th, the second between the 23rd and 25th. These showers were moderately heavy, exceeding 1 inch in 24 hours at the following places on the following dates:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Dungarpur . .	Dungarpur . .	14th October .	2·32
Partabgarh . .	Partabgarh . .	,, ,, .	1·59
Udaipur . . .	Udaipur . . .	,, ,, .	1·04
Alwar . . .	Thana Ghazi . .	17th ,, .	1·19
Kotah . .	Sangod . . .	25th ,, .	1·50

The total rainfall of the month was hence generally in excess of the normal, in some states very largely so, as is shown by the following comparative data for some of the larger states:—

State.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inch.	Inch.	
Jaipur	0·61	0·10	+0·51	+ 510
Alwar	0·57	0·29	+0·28	+ 97
Bharatpur	0·23	0 15	+0·08	+ 53
Dholpur	0·07	0·16	—0 09	— 56
Karauli	1·03	0·07	+0·96	+1,371
Kotah	0·67	0·13	+0·54	+ 415
Ajmer-Merwara . . .	0·15	0·14	+0·01	+ 7
Udaipur	0·48	0·47	+0·01	+ 2
Sirohi	0·28	0·62	—0·34	— 55

In Central India the rainfall occurred under generally similar conditions. Showers fell between the 13th and 18th, and again between the 23rd and 26th. The showers were lighter than in Rajputana and the total rainfall varied irregularly from the normal, as is shown by the following data for the larger states:—

State.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Indore . . .	1·71	1·09	+0·62	+ 6
Rutlam . . .	0·13	0·81	—0·68	—84
Bhopal Agency . .	1·19	0·75	+0·44	+59
Gwalior . . .	0·92	0·48	+0·44	+92
Rewah	0·83	2·13	—1·30	—61
Bundelkhand . .	0·40	1·18	—0·78	—66

Light, unimportant, scattered showers occurred over the Central Provinces during the greater part of the month, but on the 31st there occurred a burst of very general and

moderate rain. On this day amounts exceeding 1 inch in 24 hours were recorded at the following places: -

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 31st October 1902.
		Inches.
Damoh	Tejgarh	2·00
Betul	Betul	1·85
Narsinghpur	Narsinghpur	1·73
Ho-hangabad	Pachmarhi	1·55
	Hoshangabad	1·35
	Seoni	1·34
	Harda	1·33
Betul	Multai	1·24
Nimar	Burhanpur	1·11
Betul	Shahpur	1·06
Nimar	Harsud	1·05
Narsinghpur	Gadarwara	1·05
	Mohpani	1·05

The rainfall was lighter, notwithstanding this general fall at the close of the month, than usual throughout the Central Provinces, as is shown by the comparative data for the different districts :—

District.	Rainfall. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Chanda	0·34	1·93	—1·59	—83
Bhandara	0·50	1·10	—0·60	—55
Balaghat	0·44	1·84	—1·40	—76
Raipur	0·31	1·67	—1·36	—81
Bilaspur	0·39	2·11	—1·72	—82
Sambalpur	0·33	1·99	—1·66	—86
Saugor	0·44	1·23	—0·79	—64
Damoh	1·50	1·50	0	0
Jubbulpore	0·63	1·74	—1·11	—64
Mandla	0·28	1·78	—1·50	—84
Seoni	1·09	1·93	—0·84	—44
Narsinghpur	1·41	1·64	—0·23	—14
Hoshangabad	1·80	1·38	+0·42	+30
Nimar	2·18	1·33	+0·85	+63
Betul	1·98	1·76	+0·22	+13
Chhindwara	0·80	1·93	—1·13	—58
Wardha	0·71	2·14	—1·43	—67
Nagpur	0·91	2·21	—1·30	—59

In Berar there were showers on the 1st, the 15th, the 23rd to the 26th, and on the 30th and 31st. The most important fall was that of the 30th and 31st which extended throughout the whole province. The following gives data for the different districts of Berar :—

District.	Rainfall. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Amraoti	2·28	1·48	+0·80	+54
Ellichpur	2·7	2·11	+0·56	+27
Akola	1·79	1·74	+0·05	+3
Buldana	1·94	1·54	+0·40	+26
Wun	0·99	2·09	—1·10	—53
Basim	1·94	1·62	+0·32	+20

Mysore received two bursts of general rain. The first between the 7th and the 15th; the second between the 26th and the 31st. During the first burst the following amounts exceeding 2·50 inches in 24 hours were recorded on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tumkur	Tumkur	8th October	3·05
Kolar	Chintamani	,, ,,	2·94
Chitaldroog	Molakalmuru	,, ,,	2·80
Hassan	Hassan	9th ,,	4·05
Chitaldroog	Molakalmuru	,, ,,	4·13
Kolar	Chintamani	,, ,,	2·81
Hassan	Hole Narsipur	,, ,,	2·64
	Channarayapatna	,, ,,	2·60
Mysore	Mysore	10th ,,	3·35
Kadur	Kadur	,, ,,	2·78
Shimoga	Tirthahalli	,, ,,	2·70
Chitaldroog	Chitaldroog	,, ,,	2·69
Hassan	Arsikere	,, ,,	3·55
Mysore	Heggaddevankote	11th ,,	3·08
Chitaldroog	Molakalmuru	12th ,,	3·35
	Jagalur	,, ,,	2·90
Kadur	Kadur	14th ,,	4·25
Chitaldroog	Chitaldroog	,, ,,	3·59
Tumkur	Tumkur	,, ,,	3·30
Chitaldroog	Jagalur	,, ,,	2·76
Tumkur	Tiptur	15th ,,	3·70

During the second burst the rainfall was heavy only on the 29th and 30th when the following amounts exceeding 3 inches in 24 hours were registered :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
KOLAR	Chintamani	29th October	4·79
	Sidlaghatta	,, ,,	3·80
BANGALORE	Devanhalli	,, ,,	3·46
KOLAR	Gudibanda	,, ,,	3·38
BANGALORE	Hoskote	,, ,,	3·30
KOLAR	Srinivaspur	,, ,,	3·20
	Kolar	,, ,,	3·10
	Mulbagal	,, ,,	3·02
	Gudibanda	30th ,,	4·25
	Bagepalli	,, ,,	3·41
	Chikballapur	,, ,,	3·07

The following gives comparative data for the different districts in Mysore, and shows that the rainfall was heavier than usual :—

DISTRICT.	RAINFALL.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Bangalore	8·13	5·88	+2·25	+38
Kolar	9·39	5·63	+3·76	+67
Tumkur	9·69	5·23	+4·46	+85
Mysore	6·62	5·94	+0·68	+11
Hassan	8·72	5·71	+3·01	+53
Shimoga	9·69	5·29	+4·40	+83
Kadur	9·37	6·47	+2·90	+45
Chitaldroog	9·98	3·76	+6·22	+165

The Bombay Presidency received somewhat irregularly distributed rainfall. On the Konkan coast the weather was generally fine during the first week. Between the 8th and the 15th rain became general, the fall extending northward from North Kanara to Thana during that interval. The rainfall was not generally heavy but amounts exceeding 2 inches in 24 hours were recorded on the following dates at the following places :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
RATNAGIRI	Sangameshvar	9th October	2·72
NORTH KANARA	Haliyal	,, ,,	2·54
RATNAGIRI	Khed	,, ,,	2·50
SAVANTVADI	Savantvadi	,, ,,	2·36
NORTH KANARA	Siddapur	,, ,,	2·30
	Bhatkal	11th ,,	2·33
KOLABA	Matheran	14th ,,	3·20
THANA	Thana	,, ,,	2·50

Between the 16th and the 23rd the weather was generally fine, but on the 24th another burst of rain commenced which continued in some places till the 31st and extended northward into the Thana district. The heaviest rainfall occurred on the 26th, when the following amounts exceeding 2 inches in 24 hours were registered :—

DISTRICT.	Station.	Rainfall during 24 hours preceding 8 A.M. of 26th October 1902.
		Inches.
NORTH KANARA	Mundgod	3·44
	Supa	2·60
	Honavar	2·42
	Yellapur	2·35
	Haliyal	2·19
	Kumta	2·08

The following gives comparative data for the districts in this division :—

DISTRICT.	RAINFALL.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North Kanara	7·42	6·72	+0·70	+10
Savantvadi	4·97	6·34	−1·37	−22
Ratnagiri	4·22	4·71	−0·49	−10
Kolaba	2·03	4·13	−2·10	−51
Thana	1·41	2·39	−0·98	−41

The Karnatak had three showery periods during the month : the first between the 3rd and the 5th ; the second between the 9th and the 15th ; and the third between

the 24th and the 31st. The rainfall was moderate on each occasion, and the following amounts, exceeding 2 inches in 24 hours were recorded during the month :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Dharwar	Bankapur	5th October	2·50
	Kalghatghi	9th „	2·15
Bijapur	Badami	12th „	4·26
Belgaum	Athni	„ „	4·11
Dharwar	Ron	„ „	3·55
	Mundargi	„ „	2·80
Belgaum	Gokak	„ „	2·44
Dharwar	Nargund	„ „	2·09
Bijapur	Bagalkot	„ „	2·08
Dharwar	Gadag	„ „	2·02
Kolhapur, etc.	Kolhapur	14th „	2·35
Dharwar	Mundargi	„ „	2·20
		15th „	2·45
	Hangal	26th „	2·50
Belgaum	Athni	27th „	2·06

The following gives comparative data for the districts in this division :—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Dharwar	7·10	4·98	+2·12	+43
Bijapur	3·36	4·43	—1·07	—24
Belgaum	6·51	5·13	+1·38	+27

In the south Deccan the rainfall distribution in time was similar to that in the Deccan but the rain was lighter and the only falls exceeding 2 inches in 24 hours were as follows :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Satara Jaghirs	Bhor	7th October	2·05
Satara	Malcolmpeth	9th „	2·05
	Islampur	12th „	2·36

The following gives comparative data for the different districts :—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Satara	4·02	4·37	—0·35	— 8
Sholapur	2·58	3·85	—1·27	—33
Poona	2·09	3·63	—1·54	—42

In the north Deccan only a few light showers were received, principally on the 13th, 14th and 25th. The rainfall was lighter than usual, except in Khandesh, as is shown by the following comparative data for the different districts :—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ahmednagar	1·51	2·72	—1·21	—45
Nasik	1·25	2·62	—1·37	—52
Khandesh	1·60	0·98	+0·62	+63

In Gujarat there was light rain on the 13th and 14th but the total was considerably less than usual, as is shown by the following comparative data for the different districts :—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inch.	Inches.	Inches.	
Surat	0·24	1·56	—1·32	—85
Broach	0·07	1·40	—1·33	—95
Kaira	0	0·67	—0·67	—100
Panch Mahals	0·08	0·95	—0·87	—92
Ahmedabad	0·02	0·58	—0·56	—97

Kathiawar and Cutch received a few light showers on the same date, and the total amount was less than

usual. The following gives data for the different districts :—

DISTRICT.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Baroda	0	0·69	—0·69	—100
Rewa Kantha	0·23	0·78	—0·55	— 71
Mahi Kantha	0	0·16	—0·16	—100
Palanpur	0·06	0·27	—0·21	— 74

In Sind there was no rain.

In Madras the rainfall was absolutely heavier than in other parts of the Indian land area, but, relatively to the average, it was lighter than in parts of north-west India. In the Malabar coast districts there were three periods of rainfall: the first from the 8th to the 12th; the second from the 15th to the 17th; and the third from the 23rd to the 30th. The rainfall was not heavy, but amounts exceeding 4 inches in 24 hours were reported at the following places on the following dates :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
TRAVANCORE STATE	Karunagapally	8th October	6·00
TRAVANCORE STATE	Meenachil	9th "	4·82
TRAVANCORE STATE	Karunagapally	" "	4·04
MALABAR	Vayittiri	10th "	4·81
TRAVANCORE STATE	Mavelikara	14th "	4·19
TRAVANCORE STATE	Variyur	19th "	4·30
TRAVANCORE STATE	Alleppey	" "	4·02
MALABAR	Mankara	24th "	4·51
MALABAR	Tellicherry	" "	4·50
MALABAR	Palghat	" "	4·45
TRAVANCORE STATE	Karunagapally	25th "	5·57
TRAVANCORE STATE	Alleppey	29th "	4·02

The general rainfall of the division was about normal, as is shown by the following comparative data of the two districts :—

DISTRICT.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Malabar	12·16	9·25	+2·91	+31
South Kanara	6·75	9·49	—2·74	—29

In south Madras the first week was fine, and a second fine period occurred between the 19th and the 22nd, but at other times during the month the weather was very showery and the following amounts exceeding 4 inches in 24 hours were registered :—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
TINNEVELLY	Sivakasi	6th October	4·17
MADURA	Tiruchuli	11th "	4·52
TINNEVELLY	Srivaikuntam	23rd "	4·20
MADURA	Tiruvadanai	24th "	5·64
MADURA	Palni	27th "	4·15

The following gives comparative data for the districts in this division, showing that the total rainfall was nearly twice as heavy as usual :—

DISTRICT.	RAINFALL. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madura	12·70	7·32	+5·38	+73
Tinnevelly	13·81	6·81	+7·00	+103

In south-central Madras general rain occurred between the 8th and 16th, between the 15th and 17th, on the 23rd and 24th, and on the 27th and 28th. At other times the weather was fine with occasional showers. The rainfall amounts were generally less heavy than in the south

division, but the following falls exceeding 3 inches in 24 hours were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Salem	Omalur	8th October	3·10
	Satyamangalam	9th ,,	3·24
Coimbatore	Avanashi	11th ,,	7·60
	Dharapuram	,, ,,	3·51
	Perundurai	15th ,,	3·80
	Dharapuram	,, ,,	3·14
	Coimbatore	24th ,,	3·05
Salem	Rayakotta	27th ,,	4·40
	Salem	31st ,,	3·54

The following gives comparative data for the two districts in this division, and shows that the month's rainfall was above the normal:—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Salem	7·95	5·88	+2·07	+35
Coimbatore	10·66	6·37	+4·29	+67

The central division had a showery period between the 8th and the 14th, and a second between the 23rd and the 27th, while heavy general rain fell between the 28th and the 31st. During this last fall the following amounts exceeding 3 inches in 24 hours were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Cuddapah	Chitval	28th October	3·51
	Razampeta	29th ,,	4·70
	Vayalpad	,, ,,	3·64
Kurnool	Markapur	,, ,,	3·53
Cuddapah	Madanapalle	,, ,,	3·50
	Pulivendla	,, ,,	3·35
Kurnool	Giddalur	,, ,,	3·08
Anantapur	Penukonda	30th ,,	3·52

The rainfall of the division was in excess of the normal, as is shown by the following data for the different districts:—

District.	Rainfall.			
	Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah	7·61	5·79	+1·82	+31
Anantapur	6·16	4·72	+1·44	+31
Bellary	6·54	4·30	+2·24	+52
Kurnool	4·66	4·34	+0·32	+7

The north division of the east coast received shower from the first Bay cyclone between the 1st and the 10th From that date till the 22nd, the weather was generally fine, but on the 23rd rain recommenced, and during the last four days of the month the fall was both general and heavy. The following gives the falls exceeding 7 inches in 24 hours:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Kistna	Manginapudi	29th October	11·72
	Nizampatam	,, ,,	10·20
	Avanigadda	,, ,,	9·58
	Masulipatam	,, ,,	9·50
	Pandraka	,, ,,	9·50
	Bapatla	,, ,,	8·54
	Repalle	,, ,,	8·29
Godavari	Mummidivaram	,, ,,	7·60
	Coringa	,, ,,	7·59
	Ramachandrapuram	,, ,,	7·30
Kistna	Tenali	,, ,,	7·02
Godavari	Coringa	30th ,,	15·65
	Rajole	,, ,,	10·00
Kistna	Avanigadda	,, ,,	9·96
Godavari	Ramachandrapuram	,, ,,	8·74
Kistna	Repalle	,, ,,	8·60
Godavari	Amalapuram	,, ,,	7·98
	Mummidivaram	,, ,,	7·74
	Narasapur	,, ,,	7·35

The following gives comparative data for the districts in this division, and shows that the rain was much heavier than usual in the more southern districts:—

District.	Rainfall. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	1·72	7·96	—6·24	— 78
Vizagapatam	5·99	7·64	—1·65	— 22
Codavari	13·11	7·63	+3·48	+ 46
Kistna	13·99	5·81	+8·18	+141

In the central division of the east coast the rainfall conditions were very similar. Light showers fell between the 6th and the 14th, and heavy general rain between the 23rd and the 31st. The heaviest rainfall occurred on the 28th and 29th from the second storm in the Bay, as is shown by the following data which gives the falls exceeding 5 inches in 24 hours:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 P.M. of date.
			Inches.
Nellore	Kavali	28th October	7·49
	Rapur	,, ,,	6·45
	Gudur	,, ,,	5·66
	Tada	,, ,,	5·58
	Atmakur	,, ,,	5·29
	Kota	,, ,,	5·03
	Kandukur	29th ,,	10·66
	Atmakur	,, ,,	9·02
	Udayagiri	,, ,,	7·95
	Kavali	,, ,,	7·90
	Kanuparti	,, ,,	6·70
	Rapur	,, ,,	6·65
	Makala	,, ,,	5·15
	Ongole	,, ,,	5·12

The following gives comparative data for the Nellore district:—

District.	Rainfall. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Nellore	15·68	8·68	+7·00	+81

In the south division of the east coast the weather was showery from the 6th to the 18th. There were then a few fine days after which, on the 23rd, heavy general rain commenced and continued till the close of the month. The rainiest day was the 28th, and on this day the following falls, exceeding 5 inches in 24 hours, were recorded:—

District.	Station.	Rainfall during 24 hours preceding 8 A. M. of 28th October 1902.
		Inches.
Chingleput	Vadasemmanjeri	10·70
	Saidapet	10·10
	Chingleput	9·98
	Kovelong	9·43
Madras	Madras	9·16
Chingleput	Poonamalle	8·20
	Attipat	7·85
	Kattur	7·14
	Sathiavedu	6·30
	Ponneri	6·18
	Tiruvallur	5·87
	Sriperumbudur	5·15

The month's rainfall was considerably heavier than usual, as is shown by the following comparative data for the districts in this division:—

District.	Rainfall. Average actual, October 1902.	Average normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madras	20·67	10·75	+9·92	+ 92
Chingleput	18·85	9·43	+9·42	+100
North Arcot	9·29	6·80	+2·49	+ 37
South Arcot	11·50	8·58	+2·92	+ 34
Tanjore	11·10	8·86	+2·24	+ 25
Trinchinopoly	9·04	7·49	+1·55	+ 21

The following table gives comparative details of the rainfall received at the extra-Indian stations:—

STATION.	RAINFALL.			
	Actual, October 1902.	Normal, October.	Variation of actual from normal, October 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee . . .	9·80	7·14	+ 2·66	+ 37
Colombo . . .	28·95	14·80	+14·15	+ 96
Minicoy . . .	15·13	7·46	+ 7·67	+ 103
Meshed . . .	1·52	0·42	+ 1·10	+ 262
Teheran . . .	0·90	0·10	+ 0·80	+ 800
Ispahan . . .	0	0·21	— 0·21	— 100
Bushire . . .	0·38	0·08	+ 0·30	+ 375
Jask	0·28	0·04	+ 0·24	+ 600
Muscat	1·00	0·02	+ 0·98	+4,900
Baghdad . . .	0·48	0·04	+ 0·44	+1,100
Aden	0	0·01	— 0·01	— 100
Perim	0	0·07	— 0·07	— 100
Kabul	0·45	0·32	+ 0·13	+ 47
Kashgar . . .	0	0·05	— 0·05	— 100
Zanzibar . . .	6·38	2·99	+ 3·39	+ 113
Seychelles . . .	8·60	5·29	+ 3·31	+ 63
Mauritius . . .	1·94	1·58	+ 0·36	+ 23
Penang . . .	9·52	...	...	...
Singapore . . .	2·20	...	...	...

In Asiatic Turkey, Persia and Afghanistan the rainfall as in Baluchistan and north-west India was in excess of the normal, but this excess did not extend into Kashgaria, where there was no rain throughout the month, and the small normal amount was not received. At Ispahan, also, the weather was dry throughout the month, and this station formed an exception to the general excess of rain in this quarter. At Aden and Perim the weather was rainless throughout, but at Muscat, as at the Persian and Afghan stations, the month's rainfall was largely in excess of the normal. At Minicoy and Colombo the month's rainfall, as was the case on the Malabar coast, was twice as heavy as the average, while at Trincomalee there was also a considerable though smaller excess. At Zanzibar and the Seychelles the rainfall of the month was also in large excess of the normal.

There was thus a large excess of rain all over the southern half of the monsoon area, and a relatively large excess in the north-west, while over the central area there was more or less deficiency.

W. L. DALLAS.

Table I.—Abstract of Observations taken at 8 a.m. at 229 Stations in India, Burma, etc., in October, 1902.

Table

Abstract of Observations taken at 8 A.M. at 229

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.				+·074								88·3	+0·9	75·3	+0·2	81·9	+0·5	13·0					19·5
1	Tenasserim and Bay Islands.	Car Nicobar¶ .	25	29·937		29·890	30·016	6th	29·842	25th	·174	78·7	85·2		75·2		80·2		10·0	90·3	16th	73·0	22nd	17·3
		Port Blair .	61	29·926	+·070	29·918	30·020	6th	29·841	30th	·179	81·6	88·2	+1·4	78·4*	+1·1	83·3*	+1·3	9·8	91·8	12th	75·8	2nd	16·0
		Mergui . .	96	29·904	+·068	29·921	29·963	5th	29·855	2 days	·108	79·5	89·4	+2·2	74·3	+2·2	81·9	+2·2	15·1	92·6	28th	72·4	27th	20·2
		Tavoy . .	26	29·983	+·064	29·940	30·053	6th	29·928	25th	·125	78·7	89·7	+1·7	73·4	+0·1	81·6	+0·9	16·3	95·2	28th	70·0	27th	25·2
		Moulmein .	94	29·912	+·077	29·943	29·977	6th	29·864	30th	·113	80·2	90·3	+1·9	75·2	+0·5	82·8	+1·2	15·1	93·0	23rd	71·8	12th	21·2
2	Lower Burma .	Rangoon .	41	29·951	+·059?	29·929	30·036	6th	29·897	30th	·139	79·7	87·8	+0·1	75·6	0	81·7	+0·1	12·2	90·6	7th.	73·4	20th	17·2
		Bassein . .	27	29·972	+·079	29·935	30·051	6th	29·917	1st	·134	80·3	88·1	+0·7	76·1	+0·9	82·1	+0·8	12·0	91·2	24th, & 25th.	74·1	28th	17·1
		Diamond Island	41	29·949	+·068	29·925	30·041	6th	29·877	18th	·164	82·1	86·5	0	77·6	+0·9	82·1	+0·5	8·9	89·4	15th	74·2	1st	15·2
5	Arakan . .	Akyab . .	20	29·981	+·083	29·944	30·064	6th	29·888	1st	·176	77·9	87·2	−0·6	75·0	−1·7	81·1	−1·2	12·2	89·9	3 days.	71·7	18th	18·2
3	Central Burma .	Toungoo .	183	29·824	+·081	29·951	29·882	6th	29·771	1st	·111	79·9	90·9	+0·6	72·4	−2·4	81·7	−0·9	18·5	96·4	16th	68·6	28th	27·8
	II.—Burma Inland				+·098								88·7	−1·5	71·8	−1·4	80·4	−1·5	17·0					24·5
3	Central Burma .	Thayetmyo .	130	29·888	+·099	29·961	29·952	6th	29·827	1st	·125	79·5	90·5	−0·1	72·6†	−1·3†	81·9*	−0·7	17·7	93·0	2 days	69·5	29th	23·5
4	Upper Burma .	Minbu . .	165	29·845	+·078?	29·956	29·913	12th	29·789	1st	·124	79·1	89·1	−2·2	74·4	−0·6	81·8	−1·4	14·7	95·2	2 days	71·1	10th	22·1
		Yamethin .	657	29·355	+·077?	29·961	29·408	12th	29·296	31st	·112	75·5	91·3	−1·2	73·6	−0·2	82·5	−0·7	17·7	95·8	27th	72·2	4 days	23·6
		Mandalay .	250	29·758	+·090	29·960	29·822	11th	29·722	16th	·100	78·8	90·4	−1·4	73·1	−1·7	81·8	−1·6	17·3	95·5	11th	70·1	25th	25·4
		Kindat . .	377	29·651	+·105	29·991	29·723	12th	29·582	1st	·140	74·6	85·7	−1·2	70·4	−1·6	78·1	−1·4	15·3	88·8	3 days	66·3	31st	22·5
		Bhamo . .	381	29·645	+·099	29·989	29·718	12th	29·595	16th	·123	72·7	85·6	−2·9	66·6	−3·0	76·1	−3·0	19·0	83·5	2 days	58·7	31st	29·8
1(a)	Burma Hill Stations.	Maymyo .		26·484			26·560	12th	26·334	31st	·226	67·6	76·6		58·2		67·4		18·4	80·0	5 days	53·8	25th	26·2
		Taunggyl .																						
		Lashio . .		27·251	+·078		27·314	12th	27·195	16th	·119	66·3	81·6	−1·9	61·0	−2·5	71·3	−2·2	20·6	85·5	6th	53·0	31st	32·5
	III.—Assam				+·097								83·4	−2·2	68·5	−2·9	76·0	−2·6	14·9					27·8
7	Surma .	Silchar . .	104	29·925	+·100	29·982	29·996	12th	29·815	1st	·181	74·7	87·5	−1·2	69·3	−3·0	78·4	−2·1	16·2	94·0	3rd	61·3	31st	32·7
9	Brahmaputra .	Sibsagar .	333	29·713	+·093	30·013	29·783	12th	29·632	4th	·151	70·6	81·1	−3·7	67·6	−3·2	74·4	−3·5	13·5	87·2	2 days	59·0	31st	28·2
		Dhubri . .	115	29·911	+·098	29·984	30·007	12th	29·836	8th	·171	74·3	82·7	−1·8	70·3	−2·5	76·5	−2·2	12·4	86·2	1st	63·2	29th	23·0
		Gauhati .	195	29·851		30·006	29·933	12th	29·768	1st	·165	73·1	84·7		68·5		76·6		16·2	90·0	3rd	61·0	31st	29·0
		Tezpur . .	252	29·788		30·004	29·871	12th	29·708	2 days	·163	71·9	81·9		68·5		75·2		13·4	87·6	3rd	62·9	29th	24·7
		Dibrugarh .	352	29·671			29·993	29th	29·603	9th	·141	71·1	82·4		66·8		74·6		15·6	89·7	3rd	60·5	31st	29·2
	IV.—Bengal and Orissa				+·094								87·3	−0·1	72·7	−0·8	80·0	−0·5	14·6					23·5
6	East Bengal	Chittagong .	87	29·912	+·084	29·949	29·994	12th	29·792	1st	·202	77·2	86·1	−0·4	71·5	−1·9	78·8	−1·2	14·6	88·5	29th	66·6	25th	21·9
		Noakhali .	43	29·953		29·943	30·024	6th	29·842	1st	·182	78·9*	86·7‡		74·2§		80·6§		12·5	91·7	15th	69·9	4th	21·8
		Comilla . .	36	29·964		29·948	30·052	6th	29·857	1st	·195	76·6	87·1		71·5		79·3		15·6	91·8	2nd	67·8	25th	24·0
		Sirajganj .	49	29·956		29·955	30·035	12th	29·860	1st	·175	76·1	84·4		73·4		78·9		11·0	87·3	2nd, 8th & 24th	65·7	6 days	17·6
		Narayanganj .	26	29·983	+·100	29·957	30·065	12th	29·878	1st	·187	78·7	86·1	−1·8	75·0	−0·3	80·6	−1·1	11·1	89·6	2nd	71·7	8th	17·9
		Barisal .	13	29·982†	+·082	29·940†	30·060	12th	29·873	1st	·187	80·1	87·1	−0·5	73·7	−0·9	80·4	−0·7	13·4	90·3	3 days	71·1	2 days	19·2
		Mymensingh .	59	29·943	+·078	29·934	30·024	12th	29·846	1st	·178	76·8	84·3	−1·9	72·2	−1·0	78·3	−1·5	12·1	89·2	2nd	67·6	2 days	21·6
10	Deltaic Bengal.	Faridpur .	46	29·965		29·959	30·038	6th	29·868	1st	·170	78·5	85·9		72·8		79·4		13·1	89·3	11th & 12th	69·9	21st, 27th & 31st	19·4
		Jessore . .	33	29·971	+·091	29·951	30·045	6th & 12th	29·880	1st	·165	78·6	87·8	−0·6	72·7	−1·9	80·3	−1·3	15·1	91·5	2 days	68·2	31st	23·3
		Calcutta . .	21	29·987	+·099	29·954	30·059	12th	29·906	2nd	·153	79·9	88·6	+1·9	74·1	−0·2	81·4	+0·9	14·5	92·2	13th	69·6	27th	22·6
		Sangor Island.	25	29·974	+·094	29·943	30·049	12th	29·887	3rd	·162	81·1	88·5	+1·6	77·2	+1·0	82·9	+1·3	11·3	91·4	11th	70·0	28th	21·4
		Krishnagar .	47	29·970		29·966	30·035	12th	29·879	1st	·156	78·0	89·0		71·7		80·4		17·3	93·3	12th	66·7	31st	26·6
		Midnapore .	149	29·848		29·946	29·923	28th	29·775	1st	·148	78·9	89·7		73·8		81·8		15·9	93·3	10th, 12th	69·7	14th & 29th.	23·6

* Mean of 30 days. † Mean of 27 days. ‡ Mean of 29 days.

I.

Stations in India, Burma, etc., in October, 1902.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 31st October 1902.	Normal rainfall for period, 1st May to 31st October.	Variation from normal of period, 1st May to 31st October 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				4·69	8·69	−4·44					**I.—Burma Coast and Bay Islands.**		
11	2	3	1	1	3	3	2		S 8° W	1·7‡	1·7‡			93	·912	7·4	8			5·55						2·10	Car Nicobars)**	Tenasserim and Bay Islands.	1
4	1	6	4	6	1		4	5	N 51° E	5·6	6·3	6·4	− 2	87	·942	4·4	14			7·76	11·76	− 4·00	111·39	96·66	+14·73	1·03	Port Blair		
23	3	1			3	1			Calm.	1·6	1·4	1·5	− 7	88	·869	4·2	7	16·10	−9·10	5·62	12·74	− 7·12	121·28	151·83	−30·55	1·50	Mergui,		
29		1						1	N	1·2				90	·878	2·6	5	12·30	−7·30	2·93	9·45	− 6·52	188·07	201·38	−13·31	1·16	Tavoy,		
18		5	4	1	1		2		N 72° E	1·3	1·4	1·7	−18	89	·923	3·0	5	10·70	−5·70	4·01	7·97	− 3·96	165·18	177·86	−12·68	1·52	Moulmein,		
1	7	15	5		1			2	N 38° E	3·9	3·3	3·2	+ 3	88	·900	4·2	7	8·50	−1·50	4·00	6·39	− 2·39	63·80	91·80	¶	1·42	Rangoon .	Lower Burma .	2
7	3	6	5	7			1	2	N 68° E	3·3		2·5	+32	89	·928	3·9	9	12·10	−3·10	4·89	8·13	− 3·24	105·92	106·37	− 0·45	2·23	Bassein,		
1	4	17	5	3	1				N 56° E	8·8	8·8	6·4	+38	83	·919	3·3	9	11·60	−2·60	4·44	8·00	− 3·56	97·67	108·18	−10·51	1·27	Diamond Island.		
	9	18	1	2	1				N 38° E	3·1	3·0	2·3	+30	92	·883	2·7	5	8·30	−3·30	4·91	10·26	− 5·37	184·61	183·75	+ 0·86	3·20	Akyab .	Arakan .	5
7		2	3	7	1	2	3	6	S 19° E	1·9	1·9	1·8	+ 6	89	·906	4·7	8	9·60	−1·60	2·80	6·56	− 3·76	61·82	75·12	−13·30	0·75	Toungoo .	Central Burma.	3
																				3·65	4·77	−1·12					**II.—Burma Inland.**		
	8	4	2	6	8	1	1	1	S 78° E	2·6		3·1	−16	86	·873	4·5	3	6·90	−3·90	3·53	4·00	− 0·47	33·85	33·84	+ 0·01	2·37	Thayetmyo .	Central Burma	3
4	2		2	2	1		1	19	N 40° W	4·6	5·5			81	·821	3·2	5	5·20	−0·20	3·65	4·41	− 0·76	23·22	29·86	− 6·64	1·70	Minbu .	Upper Burma .	4
19	5			2	3			2	N	2·5	2·6			85	·836	3·5	6	6·60	−0·60	5·79	5·72	+ 0·07	32·78	33·91	− 1·13	2·15	Yamethin,		
	12	8		7	2	1		1	N 40° E	4·7	4·7			83	·820	2·7	4	5·60	−1·60	4·37	4·98	− 0·61	27·60	28·98	− 1·38	2·08	Mandalay,		
21	6	3						1	N 9° E	0·8	0·8			91	·790	7·8	4	7·60	−3·60	1·54	6·07	− 4·53	65·28	65·15	+ 0·13	0·78	Kindat,		
15	2	4	3					7	N 5° E	1·1	1·3			90	·729	2·5	3	5·70	−2·70	3·04	3·47	− 0·43	64·88	68·52	− 3·64	2·39	Bhamo,		
29		2							N 45° E	2·0				89	·599	6·1*	8	11·20	−3·20	9·32	7·71	+ 1·61	55·70	51·99	+ 3·71	3·15	Maymyo.	Burma Hill Stations.	4(a)
																											Taunggyi.		
	12	13	1	2				3	N 23° E	2·9				94	·596	8·4	12			5·05	3·68	+ 1·37	51·37	54·98	− 3·61	1·07	Lashio,		
																				2·89	4·83	−0·89					**III.—Assam.**		
29			2						E	0·7	1·2	2·1	−42	88	·767	6·1	6	7·00	−1·00	6·12	6·03	+ 0·09	90·19	97·90	− 7·71	2·58	Silchar .	Surma.	7
11	10	9						1	N 18° E	1·8	1·6	2·0	−20	98	·735	9·1	8	4·20	+3·80	4·01	4·99	− 0·98	78·22	76·81	+ 1·41	1·23	Sibsagar .	Brahmaputra .	9
2		10	18		1				N 76° E	2·8	3·3	2·9	+14	88	·753	3·9	4	4·10	−0·10	1·70	3·48	− 1·78	110·67	85·47	+25·20	1·06	Dhubri,		
2	6	9	4	3	4	1		2	N 56° E	1·6	1·8			91	·747	7·2	3	4·10	−1·10	1·08			38·41			0·49	Gauhati,		
2	1	8	18	2					N 78° E	2·5	2·7			90	·706	5·3	6	5·50	+0·50	1·62			60·02			0·37	Tezpur,		
	9	9	5	1	1	1		5	N 26° E	1·2	1·1			87	·658	5·1	10	7·70	+2·30	2·80			109·86			0·65	Dibrugarh,		
																				2·84	5·02	−2·18					**IV.—Bengal and Orissa.**		
	2	20	2	5	2				N 61° E	3·1	3·0	3·0	0	89	·827	3·0‡	4	6·81	−2·81	4·18	6·37	−1·89	106·42	86·32	+20·10	2·65	Chittagong .	East Bengal .	6
	7	10	6	1	1	4	1	1	N 42° E	2·3	2·4			87*	·860*	3·1	2	7·13	−5·13	4·89	7·92	− 3·03	132·59	102·84	+29·75	3·62	Noakhali,		
10	4	2	4	2	8			1	S 63° E	2·0	1·6			89	·816	2·7*	4	5·62	−1·62	6·14	5·43	+ 0·71	73·59	78·31	− 4·72	4·16	Comilla,		
22	1	2	3	3					N 87° E	1·3	1·3			93	·838	4·0‡	5	4·77	+1·23	3·71	4·37	− 0·66	74·62	55·13	+19·49	1·20	Sirajganj.		
9	2	7	3	2	1	3	1	3	N 39° E	2·4		2·3	+4	87	·854	4·8*	5	5·06	−0·06	1·44	4·48	− 3·04	61·70	59·45	+ 2·25	0·52	Narayanganj.		
9	2	2	3	4	4	1	1	5	S 63° E	1·7				85	·879	3·2	8	5·91	+2·06	3·90	6·69	− 2·79	104·72	68·95	+35·77	1·13	Barisal.		
27			2	2					S 72° E	1·4	1·3			88	·810	4·1‖	8	5·58	+2·42	3·44	5·12	− 1·68	96·61	77·92	+16·69	1·18	Mymensingh.		
8	6		3	3	3	3	1	4	N 27° W	1·6	1·3			86	·841	2·5	3	5·31	−2·31	2·38	4·49	− 2·11	71·39	59·18	+12·21	1·25	Faridpur .	Deltaic Bengal.	10
28	2						1		N 27° W	0·6		2·1	−71	88	·857	3·0	4	5·74	−1·74	4·05	4·38	− 0·33	53·12	55·73	− 2·61	2·48	Jessore,		
7	4	2	4	1	2	6	2	3	N 63° W	2·8		3·2	−13	84	·857	3·4	4	5·33	−1·33	2·78	4·12	− 1·34	53·95	54·71	− 0·76	2·05	Calcutta.		
	6	8	1		1	7	4	4	N 29° W	6·9		6·5	+ 6	82	·869	5·0	4	7·90	−3·90	3·87	3·64	− 4·77	58·89	66·68	− 7·79	1·77	Saugor Island		
2	5	4	5	6	3	1	2	2	N 74° E	2·1	2·3			87	·836	3·3	3	4·97	−1·97	2·01	4·20	− 2·19	39·55	49·21	− 9·66	1·34	Krishnagar.		
6	9	4		1	5	6			N 27° W	1·6	1·4			81	·804	2·5	2	5·27	−3·27	0·81	4·51	− 3·70	44·98	55·17	−10·19	0·57	Midnapore.		

§ Mean of 20 days. ‡ Mean of 15 days. ¶ Observation of 30 days. ** Wind variable.

Table

Abstract of Observations taken at 8 A.M. at 229

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal	Bankura	298	29·684?		29·939?	29·763	28th	29·605	8th	·158	77·5	89·8‖		73·1		81·5		16·7	94·1	10th	67·4	29th	26·7
		Raniganj	334	29·663		29·953	29·737	28th	29·589	8th	·148	76·1	89·3		71·8		80·6		17·5	94·2	10th & 12th.	65·5	29th	28·7
		Burdwan	101	29·906	+·090	29·954	29·979	28th	29·829	1st	·150	78·3	89·0	+0·3	73·8	−0·8	81·4	−0·3	15·2	93·4	2 days	66·8	2 days	26·6
		Naya Dumka	489	29·517		29·574	29·582	28th	29·430	8th	·152	76·5	87·4		70·5		79·0		16·9	91·0	10th & 12th	64·9	29th	26·1
		Berhampore	67	29·946	+·097	29·962	30·014	28th	29·858	8th	·156	78·5	88·3	+0·8	73·8	−0·5	81·1	+0·2	14·5	91·3	12th	69·7	29th	21·6
		Rampur Boalia.	70	29·946		29·966	30·016	12th	29·856	8th	·160	78·0	86·3		73·1		79·7		13·2	89·1	5 days	68·6	29th	20·5
		Malda	72	29·916?		29·942?	29·980	27th	29·820	8th	·160	77·9	86·3		71·5		78·9		14·8	91·1	8th	68·0	6 days	23·1
		Bogra	61	29·935?	+·094?	29·949?	30·008	12th	29·844	1st	·164	75·7	85·1	−2·1	71·5	−1·2	78·3	−1·7	13·6	88·7	2nd	67·2	31st	21·5
12	North Bengal	Dinajpur	123	29·892	+·093	29·973	29·951	27th	29·813	8th	·138	75·1	85·5	−1·9	70·4	−1·6	78·0	−1·8	15·1	89·3	2 days	64·5	31st	24·8
		Rangpur	123	29·904		29·984	29·987	12th	29·815	1st	·172	75·7	85·3		70·7‡		77·9‡		14·6	89·7	3rd	64·3	29th & 30th.	25·4
		Jalpaiguri	284	29·744	+·100	29·994	29·832	12th	29·665	8th	·167	73·5	84·3	−1·5	68·1	−1·7	76·2	−1·6	16·2	90·4	3rd	60·1	31st	30·3
		Cooch Behar	156	29·874		29·990	29·966	12th	29·795	8th	·171	74·2	84·8		69·5		77·2		15·3	89·3	2nd & 3rd.	62·1	30th & 31st.	27·2
17	North Bihar	Purnea	125	29·895	+·105	29·977	29·964	2 days	29·808	8th	·156	75·0	85·2	−2·2	70·4†	−0·8†	77·8†	−1·5	14·8	89·2	2 days	63·6	29th	25·6
14	Orissa	Balasore	48	29·965	+·088	29·958	30·037	28th	29·879	2nd	·158	79·1	89·6	+1·6	73·1	0	81·4	+0·8	16·5	93·4	9th	68·9	29th	24·5
		False Point	21	29·986	+·100	29·949	30·064	12th	29·905	2nd	·159	81·2	89·6	+2·2	74·1	−0·5	81·9	+0·9	15·5	94·5	9th	70·1	31st	24·4
		Cuttack	80	29·935	+·110	29·959	30·015	6th	29·861	1st & 2nd.	·154	78·6	92·3	+2·6	74·4	−0·2	83·3	+1·2	17·9	95·4	21st	71·2	18th, 19th & 31st.	24·2
		Puri	24	29·988		29·951	30·075	12th	29·913	1st	·162	80·9	90·0		77·2		83·6		12·8	93·7	19th	71·6	30th	22·1
	V.—Gangetic Plain and Chota Nagpur.				+·093								88·8	−0·3	69·2	+0·4	79·0	+0·1	19·6					31·0
15	Chota Nagpur	Hazaribagh	2,007	27·981	+·084	29·966	28·053	12th & 28th	27·911	8th	·142	?	?	?	?	?	?	?	?	?	?	?	?	?
		Ranchi	2,128	27·859	?	29·160	27·930	12th	27·802	8th	·128	73·0	84·3	+1·3	67·0	+1·4	75·7	+1·4	17·3	87·7	9th & 11th.	62·4	29th	25·3
		Daltonganj	730?	29·277		29·983	29·373	28th	29·195	8th	·178	71·5	90·0		66·4		78·2		23·6	94·1	10th	58·5	29th	35·6
		Purulia		29·170?		29·945?	29·239	12th	29·092	8th	·147	77·0	88·9		69·7		79·3		19·2	92·5	10th, 11th & 12th.	64·4	29th	28·1
		Chaibassa	760	29·235	+·092	29·958	29·315	28th	29·169	8th	·146	75·9	89·1	+0·4	71·4	+1·1	80·3	+0·8	17·7	92·6	10th & 12th.	66·5	29th	26·1
16	South Bihar	Gaya	375	29·623	+·090	29·960	29·714	28th	29·528	8th	·186	77·0	90·2	+0·6	71·0	0	80·6	+0·3	19·2	95·2	13th	62·7	30th	32·5
		Dehri	351	29·647		29·959	29·727	28th	29·549	8th	·178	77·3	89·5		71·5		80·5		18·0	94·3	13th	63·5	29th & 30th,	30·8
		Patna	183	29·823	+·090	29·962	29·901	28th	29·726	8th	·175	79·1	87·0	−1·2	72·4	−0·1	79·7	−0·7	14·6	90·5	7th	66·3	29th & 31th.	24·2
		Arrah	190	29·823		29·970	29·905	28th	29·719	8th	·186	76·4	88·5		70·0		79·3		18·5	91·5	9th, 10th & 13th.	60·1	29th & 30th.	31·4
		Buxar	239	29·763		29·962	29·848	28th	29·662	8th	·186	76·9	89·2		70·4		79·8		18·8	93·0	10th	62·5	30th	30·5
17	North Bihar	Bhagalpur	160	29·850		29·966	29·928	28th	29·752	8th	·176	78·0	87·0		71·1		79·1		15·9	90·7	8th	65·1	29th & 30th.	25·6
		Darbhanga	166	29·838	+·088?	29·962	29·604	27th & 28th.	29·738	8th	·166	75·5	85·3	−1·4	72·4	−0·7	78·9	−1·1	12·9	89·3	6th	66·9	30th	22·4
		Muzaffarpur	178	29·840		29·976	29·918	28th	29·738	8th	·180	77·2	85·4		70·9		78·2		14·5	89·2	2nd & 8th.	63·3	30th	25·9
		Motihari	224	29·798		29·984	29·918	28th	29·689	8th	·229	75·7	85·9		68·7		77·3		17·2	90·4	1st	61·8	28th, 29th & 30th.	28·6
		Chapra	181	29·815		29·953	29·892	28th	29·718	8th	·174	77·0	88·6		70·6		79·6		18·0	91·9	10th	63·6	30th	28·3
18	United Provinces (East).	Benares	267	29·725	+·086	29·953	29·809	28th	29·635	8th	·174	76·5	93·3	?	66·4	−1·9	79·9	?	26·9	97·8	10th	57·7	30th	40·1
		Allahabad	309	29·701	+·104	29·971	29·782	28th	29·615	8th	·167	76·5	90·7	+0·2	67·2	−0·4	79·0	−0·1	23·5	94·6	10th	58·4	30th	36·2
23	United Provinces (East Sub-montane).	Gorakhpur	257	29·750	+·106	29·970	29·825	28th	29·644	8th	·181	74·7	86·9	−1·8	68·7	−1·3	77·8	−1·6	18·2	91·0	6th & 12th.	61·1	25th & 30th.	29·9
19	South Oudh	Lucknow	368	29·618	+·087	29·953	29·715	28th	29·504	8th	·211	75·3	90·9	−0·3	66·1	+0·6	78·5	+0·2	24·8	96·3	9th	58·2	29th	38·1
20	North Oudh	Bahraich	401	29·578‖	+·104‖	29·947‖	29·653	28th	29·498	8th	·154	75·6	88·8	−1·3	68·0	+0·8	78·4	−0·3	20·8	92·6	11th	60·5	30th	32·1
21	United Provinces (Central).	Cawnpore	416	29·571	+·084	29·951	29·668	28th	29·471	8th	·197	75·7	91·5	0	66·9	+1·1	79·1	+0·6	24·6	96·3	13th	58·5	30th	37·8
		Mainpuri	516	29·462?	+·086?	29·948?	29·584	28th	29·357	8th	·227	75·7	93·4	+0·5	66·8	+2·2	80·1	+1·4	26·6	98·3	13th	57·6	30th	40·7

* Mean of 30 days. † Mean of 27 days. ‡ Mean of 29 days.

I—*continued.*

Stations in India, Burma, etc., in October, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 31st October 1902.	Normal rainfall for period, 1st May to 31st October.	Variation from normal of period, 1st May to 31st October 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
27	1					1	1	1	N 63° W	1·1	1·3			79	·753	2·9	2	4·81	−2·81	1·14	4·08	−2·94	40·16	51·59	−11·43	0·68	Bankura	Central Bengal	11
26	3	1						1	N	0·3				85	·769	2·9	1	4·23	−3·23	0·76	3·22	−2·46	46·18	51·68	−5·50	0·74	Raniganj		
17	4	2			1	2	1	4	N 34° W	1·2	1·2	2·1	−43	83	·808	3·6	4	4·10	−0·10	1·50	3·27	−1·77	39·09	51·86	−12·77	0·55	Burdwan		
11	4		4	1	2	3		6	N 34° W	1·3	1·5			83	·762	3·4	4	4·70	−0·70	1·98	3·94	−1·96	52·50	55·06	−2·56	0·89	Naya Dumka		
13	2	1	4	1	4	2	1	3	S 45° E	1·3	1·3	2·1	−38	83	·809	3·8*	5	5·04	−0·04	4·98	3·95	+1·03	58·40	50·84	+ 7·56	2·84	Berhampore		
24	1	2		1		2		1	N	0·8	0·8			86	·825	2·2	2	4·90	−2·90	2·56	4·49	−1·93	71·43	53·10	+18·33	2·32	Rampur Boalia		
1	6	3	7	6	3	3		2	N 89° E	0·7	0·7			85	·808	1·8	6	4·39	+1·61	4·33	4·18	+0·15	45·46	50·12	− 4·66	1·79	Malda		
14	3	2	10				2		N 66° E	2·0	2·3			90	·806	2·8	5	4·84	+0·16	5·49	4·21	+1·28	75·12	61·52	+13·60	3·10	Bogra		
	3	14	7	3		1	2	1	N 56° E	1·6	1·5			87	·769	5·0‡	3	3·64	−0·64	1·70	3·02	−1·32	74·61	67·03	+ 7·58	0·64	Dinajpur	North Bengal	12
5		10	11	3		2			N 78° E	2·1	2·2			89	·795	4·4‡	4	4·03	−0·03	2·66	4·94	−2·28	87·32	78·45	+ 8·87	0·93	Rangpur		
	14	9	4	2				2	N 27° E	1·2	1·5			88	·707	3·8	5	4·71	+0·29	3·73	3·82	−0·09	146·06	117·00	+29·06	2·65	Jalpaiguri		
11		6	10	4					N 87° E	1·4	1·5			84	·717	3·8	5	4·17	+0·83	2·95	4·79	−1·84	166·19	120·02	+46·17	1·00	Cooch Behar		
12		14	1	2				2	N 48° E	1·6	1·4	1·4	0	90	·786	2·4	6	3·39	+2·61	2·19	3·44	−1·25	49·38	62·01	−12·63	0·64	Purnea	North Bihar	17
6	9	1				7	2	6	N 51° W	2·1				79	·790	2·1	2	6·32	−4·32	2·20	5·74	−3·54	47·39	58·13	−10·74	1·09	Balasore	Orissa	14
2	6	1	1			3	11	7	N 58° W	5·2	5·0	6·1	−18	80	·858	3·8	2	7·74	−5·74	1·00	8·58	−7·58	45·73	58·79	−13·06	0·79	False Point		
19	1	2	2		1	3	3		S 63° W	0·9		1·9	−53	80	·763	2·0	2	6·06	−4·06	1·43	5·24	−3·81	57·85	54·93	+ 2·92	1·00	Cuttack		
16	6	3				1	1	4	N 11° W	6·9	6·5			79	·839	1·4	2	7·62	−5·62	0·58	8·98	−8·40	52·33§	49·13§	+3·20§	0·34	Puri		
																				0·70	2·63	−1·93					V.—Gangetic Plain and Chota Nagpur.		
6	1	1	1	3	3	3	9	4	S 73° W	5·5	4·9	5·0	− 2	P	P	3·5	2	4·48	−2·48	0·57	3·14	−2·57	40·29	50·47	−10·18	0·43	Hazaribagh	Chota Nagpur	15
5	5	2	1	1	2	2	6	7	N 52° W	3·3	3·3			70	·572	3·2	2	4·35	−2·35	0·24	2·92	−2·68	45·40	51·45	− 6·05	0·14	Ranchi		
28			2	1					S 72° E	1·3	1·6			83	·651	1·4	0	3·06	−3·06	0·07	2·40	−2·33	30·20	41·70	−11·50	0·07	Daltonganj		
25		1					3	2	N 63° W	2·1	2·5			73	·674	2·6	2	3·80	−1·80	0·40	3·17	−2·77	44·82	48·83	− 4·01	0 20	Purulia		
24						4	2	1	S 72° W	0·8	0·7			80	·725	2·1	0	4·19	−4·19	0·03	2·29	−2·26	48 89	46·61	+ 2·28	0·03	Chaibassa		
11	1	2	1	2	3	11			S 22° W	3·4	3·0	1·5	+100	73	·680	2·5	0	2·90	−2·90	0·07	2·20	−2·13	38·75	44·44	− 5·69	0·07	Gaya	South Bihar	16
7	1		2	1	9	10	1		S 17° W	2·7	2·4			73	·681	3·1*	2	2·78	−0·78	0·84	2·49	−1·65	41·05	40·86	+ 0·19	0·67	Dehri		
2	1	3	5	4	3	7	2	4	S 2° E	2·4	2·7	1·9	+42	79	·794	2·5	3	3·13	−0·13	1·64	3·26	−1·62	44·44	45·90	− 1·46	0·66	Patna		
14	1	1	1	3	1	4	4	2	S 53° W	1·3	1·3			83	·763	0·7	2	3·48	−1·48	1·04	2·77	−1·73	37·63	43·27	− 5·64	0·70	Arrah		
	1		8	3	1	4	12	2	S 56° W	3·9	3·7			76	·709	2·4*	2	2·84	−0·84	0·89	2·96	−2·07	35·75	39·22	− 3·47	0·59	Buxar		
20		1	4	2	2	2			S 51° E	1·5	1·4			81	·779	1·6	3	3·03	−0·03	0·97	3·54	−2·57	39·28	46·57	− 7·29	0·57	Bhagalpur	North Bihar	17
17	1		6	5			1	1	S 76° E	1·6		2·2	−27	86	·786	2·8	3	3·03	−0·03	1·70	3·24	−1·54	51·03	48·62	+ 2·41	1·07	Darbhanga		
24			3	3		1			S 53° E	0·9				86	·860	0·8	2	2·87	−0·87	1·64	2·92	−1·28	43·10	43·28	− 0·18	0·91	Muzaffarpur		
	1	13	10	4		1	1	1	N 71° E	2·4	2·3			88	·779	2·0	2	2·71	−0·71	0·82	3·38	−2·56	68·12	49·27	+18·85	0·45	Motihari		
15		1	6	4	1	2	1	1	S 56° E	1·3	1·2			83	·774	2·1	0	2·81	−2·81	0·01	2·63	−2·62	30·13	38·62	− 8·49	0·01	Chapra		
16		2	3	1		6	3		S 32° W	1·8	2·1	2·6	−31	77	·714	2·2	0	2·20	−2·20	0·01	2·56	−2·55	27·64	38·96	−11·32	0·01	Benares	United Provinces (East).	18
7	1	3	3	1	1	4	8	3	N 84° W	3·2	3·6	2·8	+29	72	·660	2·6	0	1·90	−1·90	0	2·57	−2·57	39·03	38·62	+ 0·41	0	Allahabad		
13	5	8	3	2					N 47° E	1·0		1·3	−23	87	·752	4·0	4	2·10	+1·90	3·83	4·19	−0·36	44·35	49·69	− 5·34	2·97	Gorakhpur	United Provinces (East Submontane).	23
17		4	2	2	1	1	3	1	N 77° E	1·1	1·2	1·9	−37	74	·644	1·5	0	1·60	−1·60	0·03	1·16	−1·13	32·45	36·63	− 4·18	0·02	Lucknow	South Oudh	19
13	1	2	5	7			1	2	S 83° E	3·9	3·7			77	·696	1·6	2	1·40	+0·60	0·60	1·55	−0·95	44·09	45·27	− 1·18	0·27	Bahraich	North Oudh	20
6	1	1	2	3	2	9	6	1	S 45° W	3·1				67	·600	1·3	0	1·50	−1·50	0	1·42	−1·42	26·40	33·88	− 7·48	0	Cawnpore	United Provinces (Central).	21
18	1	1	3		2		5	1	N 79° W	0·6	0·6			62	·552	2·7	0	0·80	−0·80	0	1·12	−1·12	18·62	28·90	−10·28	0	Mainpuri		

§ Rainfall since 1st June to date.

‖ Mean of 20 days.

Table

Abstract of Observations taken at 8 A.M. at 229

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas				+·078								89·2	−1·8	64·1	+2·3	76·7	+0·3	25·1					38·7
24	United Provinces (West Submontane).	Bareilly	568	29·412	+·088	29·960	29·521	28th	29·291	8th	·230	72·3	87·9	−1·6	66·0*	+0·7*	77·0*	−0·5*	21·9*	91·9	9th & 12th	59·2	29th	32·7
		Dehra Dun	2,233	27·751	+·073	29·985	27·845	28th	27·651	8th	·194	66·3	80·1	−2·2	60·0	−0·6	70·1	−1·4	20·1	85·5	9th	53·5	26th	32·0
		Roorkee	899	29·079	+·087	29·976	29·184	28th	28·968	8th	·216	68·0	87·0	−2·3	61·3	0	74·2	−1·2	25·7	91·3	7th & 9th	54·4	24th	36·9
22	United Provinces (West).	Meerut	738	29·217	+·056	29·944	29·344	28th	29·102	8th	·242	69·6	89·2	−1·3?	64·0	+1·6?	76·6	+0·2?	25·2	94·6	14th	56·3	29th	38·3
26	South-East Punjab.	Delhi	718	29·250	+·074	29·949	29·358	28th	29·141	19th	·217	73·8	89·9	−2·2	69·1	+1·2	79·5	−0·5	20·8	97·2	7th	60·1	30th	37·1
28	Central Punjab.	Lahore	702	29·257	+·075	29·949	29·390	28th	29·108	8th	·282	72·6	92·7	−2·4	64·6	+5·5	78·7	+1·6	28·1	99·3	6th	57·5	26th	41·8
27	South Punjab	Sirsa	662	29·303	+·075	29·946	29·436	28th	29·172	8th	·264	74·9	94·2	−1·9	66·8	+4·2	80·5	+1·2	27·4	100·8	6th	59·1	26th & 29th.	41·7
		Patiala	818	29·146		29·952	29·257	28th	29·005	16th	·252	72·5	88·9		64·2		76·5		24·7	95·0	7th & 9th	56·9	29th	38·1
29	Punjab (Submontane).	Ludhiana	812	29·154	+·080	29·957	29·270	28th	29·025	8th	·245	72·0	89·2	−2·7	66·0	+3·0	77·6	+0·2	23·2	94·1	7th, 8th & 9th.	59·2	29th	34·9
		Sialkot	830	29·131	+·080	29·956	29·242	28th	29·006	8th	·236	71·7	92·7	+0·4	66·6	+4·7	79·7	+2·6	26·1	99·1	1st	57·7	26th	41·4
		Umballa	892	29·082	+·091	29·965	29·194	28th	28·957	8th	·237	71·2	90·6	−2·6	60·5	−0·3	75·6	−1·5	30·1	98·0	9th	53·0	25th	45·0
31	North Punjab	Rawalpindi	1,674	28·299	+·066	29·989	28·392	28th	28·167	8th	·225	68·8	87·7	−0·5	60·3	+4·5	74·0	+2·0	27·4	95·4	1st	51·1	23rd	44·3
	VII.—North-West Frontier Province, Indus Valley and North-West Rajputana.				+·068								94.5	−0·8	68·6	+4·2	81·6	+1·7	25·9					40·4
31	North Punjab	Peshawar	1,110	28·884	+·064	30·009	29·006	21st	28·770	8th	·236	69·8	86·8	−1·6	60·6	+3·4	75·7	+0·9	26·2	96·5	1st	53·0	19th & 20th.	43·5
32	West Punjab	Khushab	612	29·363	+·090	29·959	29·495	28th	29·213	8th	·282	75·4	92·2	−1·6	67·2	+5·3	79·7	+1·9	25·0	98·3	1st, 2nd & 3rd.	59·0	25th	39·3
		Montgomery	558	29·395	+·067	29·92	29·539	28th	29·210	8th	·329	76·3	93·8	−2·8	65·8	+5·6	79·8	+0·4	28·0	100·0	6th, 13th & 14th.	57·0	25th	43·0
		D. I. Khan	580	29·381	+·063	29·937	29·508	28th	29·238	8th	·270	72·7	92·6	−1·4	65·3	+4·7	79·0	+1·7	27·3	98·7	5th	58·6	25th	40·1
		Mooltan	420	29·528	+·058	29·925	29·687	28th	29·354	8th	·333	74·2	95·4	−0·1	69·4	+5·0	82·4	+2·5	26·0	101·4	4 days	60·9	25th	40·5
47	Sind	Jacobabad	186	29·760	+·049	29·911	29·900	28th	29·603	8th	·297	76·0	100·1	+1·5	67·9	+5·4	84·0	+3·5	32·2	107·4	9th	60·5	25th	46·9
		Hyderabad	96	29·871	+·062	29·921	29·978	28th	29·751	9th	·227	78·8	96·8	−1·2	72·0	+2·0	84·4	+0·4	24·8	102·1	13th	65·0	31st	38·1
		Kurrachee	30	29·962	+·059	29·942	30·038	28th	29·857	9th	·181	80·9	93·2	+1·6	76·4	+5·5	84·8	+3·6	16·8	101·4	13th	67·2	20th	34·2
51	West Rajputana	Bikaner	771	29·194	+·084	29·945	29·327	28th	29·061	8th	·266	78·3	94·9	−1·0	72·1	?	83·5	?	22·8	101·1	6th	61·1	28th	40·0
		Pachpadra	360	29·617	+·081	29·961	29·692	28th	29·531	19th	·161	77·1	97·3	−1·4	67·5	+2·6	82·5	+0·6	29·8	101·5	13th	59·9	30th	41·6
		Jodhpur	782	29·202		29·976	29·299	28th	29·102	8th	·197	73·0	96·4		70·2		83·3		26·2	100·2	12th	63·3	31st	36·9
	VIII.—East Rajputana, Central India and Gujarat.				+·070								92·4	−0·3	69·8	+2·3	81·1	+1·0	22·7					33·8
50	East Rajputana	Jaipur	1,431	28·573	+·075	29·925	28·670	28th	28·458	19th	·212	76·2	93·5	−0·8	66·2	+2·2	79·9	+0·7	27·3	99·2	8th	58·5	29th	30·7
		Bharatpur	585	29·407		29·967	29·513	28th & 31st.	29·262	19th	·251	74·8	93·5		68·0		80·8		25·5	98·9	7th	61·2	4 days	37·7
		Kotah	819	29·165		29·998	29·267	28th	29·077	8th	·190	77·4	93·2		69·9		81·6		23·3	98·0	18th	62·0	29th	36·0
		Sambhar	1,254	28·738	+·080	29·981	28·837	28th	28·633	19th	·204	73·6	92·4	−0·9	66·3	+2·7	79·4	+0·9	26·1	97·5	9th & 12th.	60·7	29th & 30th.	36·8
		Ajmer	1,611	28·382	?	29·985	28·482	28th	28·295	19th	·187	73·8	89·6	−2·4	67·7	+4·5	78·7	+1·1	21·9	92·4	5 days	58·7	30th	33·7
		Udaipur	1,925	28·087		30·002	28·167	28th	28·004	31st	·163	72·7	88·1		63·4		75·8		24·7	91·0	18th & 25th.	54·2	30th	36·8
		Deesa	466	29·525	+·066	29·951	29·604	6th	29·454	20th	·150	80·3	97·1	+0·2	69·8	+3·0	83·5	+1·6	27·3	100·1	25th	63·5	30th	36·6
46	Kathiawar and Cutch.	Bhuj	395	28·593	+·065	29·945	29·677	6th	29·511	20th	·166	81·0	95·8	−0·3	72·2	+1·3	84·0	+0·5	23·6	98·3	4 days	66·9	30th & 31st.	31·4
		Jamnagar	61	29·943		29·950	30·048	6th	29·862	20th	·186	81·0	94·3		71·6		82·9		22·7	98·1	12th	64·7	30th	33·4
		Rajkot	429	29·562	+·059	29·949	29·658	6th	29·467	31st	·191	79·1	94·5	−0·8	70·5	+2·4	82·5	+0·8	24·0	97·9	13th & 25th.	64·9	30th	33·0
		Veraval	18	29·960	+·047	29·920	30·044	7th	29·862	31st	·182	80·9	90·5	+1·2	74·2	+1·9	82·4	+1·6	16·3	97·1	12th	69·8	7th	27·3
		Dwarka	37	29·947†		29·920†	30·030	18th	29·881	31st	·149	82·3	88·6		77·0		82·8		11·6	96·9	12th	70·2	26th	26·7
		Bhavnagar Para.	55	29·955?	?	29·956?	30·046?	6th	29·855	31st	·191	81·7	95·0	−1·1	73·3	+1·1?	84·2	0?	21·7	100·6	19th	67·8	8th	32·8
49	Central India	Nowgong	757	29·236	+·086	29·969	29·316	28th	29·144	19th	·172	73·1	88·8	−1·5?	66·4	+1·3?	77·6	−0·1?	22·4	92·5	7th & 9th	58·0	30th	34·5
		Indore	1,823	28·191	+·083	29·985	28·262	12th	28·113	31st	·149	75·3	87·7	−0·2	64·8	+1·2	76·3	+0·5	22·9	91·8	19th	57·1	29th	34·7
		Neemuch	1,630	28·381	+·076	29·995	28·448	28th	28·301	20th	·147	74·2	90·6	+0·2	65·0	+0·5	77·8	+0·4	25·6	97·0	13th	56·1	30th	40·9

* Mean of 30 days.

I—*continued.*

Stations in India, Burma, etc., in October, 1902—continued.

Wind Direction. Number of winds from: Calm	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 31st October 1902.	Normal rainfall for period, 1st May to 31st October.	Variation from normal of period, 1st May to 31st October 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				0·66	0·37	+0·25					V.—Upper Sub-Himalayas.		
24		2	3	1			1		N 80° E	0·5	0·5	1·9	− 74	84	·667	1·5	1	0·91	+ 0·09	1·17	1·00	+0·17	40·09	44·63	− 4·54	1·10	Bareilly	United Provinces (West Sub-montane).	24
23	1					2	2	3	N 72° W	0·9		1·7	− 47	71	·466	2·0	3	1·10	+ 1·90	1·31	0·92	+0·39	56·03	81·87	−25·84	0·90	Dehra Dun,		
16		1	2	12					S 55° E	1·7		1·4	+ 21	78	·538	1·4	0	0·80	− 0·80	0·08	0·38	−0·30	41·32	38·25	+ 3·07	0·03	Roorkee,		
16			4	3		2	3	3	S 18° W	0·9	0·9	1·4	− 36	72	·536	0·7	1	0·50	+ 0·50	1·17	0·35	+0·82	33·58	28·39	+ 5·19	1·08	Meerut,	United Provinces (West).	22
9		1	2	3		3	10	3	S 81° W	3·0	2·7	2·4	+ 13	59	·484	1·4	0	0·60	− 0·60	0·05	0·06	−0·01	26·90	24·80	+ 2·10	0·05	Delhi	South-East Punjab.	26
14	3		6	6				2	N 89° E	1·7		1·6	+ 6	68	·549	0·7	1	0·40	+ 0·60	0·23	0·20	+0·03	10·78	16·36	− 5·58	0·15	Lahore	Central Punjab	28
4	1	6	2	3	4	9	1	1	S 2° E	3·5	3·2	2·5	+ 28	61	·527	0·3	1	0·40	+ 0·60	0·26	0·11	+0·15	6·83	12·36	− 5·53	0·26	Sirsa	South Punjab	27
6	1	1	10	9	1	2		1	S 68° E	3·4	3·4			67	·538	2·1	1			1·12			15·83			1·08	Patiala,		
17		4		7	1		1	1	S 72° E	2·0	1·8	0·9	+100	64	·505	1·4	0	0·50	− 0·50	0·14	0·33	−0·19	21·88	23·19	− 1·31	0·06	Ludhiana	Punjab (Submontane).	29
13	3	7	6	1				1	N 51° E	1·4		1·4	0	54	·427	0·6	0	1·00	− 1·00	0·03	0·25	−0·22	19·50	24·89	− 5·39	0·02	Sialkot,		
23			2	6					S 56° E	1·3				74	·561	1·4	1	0·40	+ 0·60	1·29	0·03	+1·26	24·17	26·97	− 2·80	1·28	Umballa,		
27	1	2		1					N 51° E	1·6	1·5	1·2	+ 25	59	·418	2·7	3	1·30	+ 1·70	1·10	0·44	+0·66	21·98	24·38	− 2·40	0·52	Rawalpindi,	North Punjab	31
																				0·09	0·05	+0·04					VII.—North-West Frontier Province, Indus Valley and North-West Rajputana.		
24					2	1	2	2	S 72° W	1·4	1·5	2·5	− 40	63	·460	2·1	2	0·40	+ 1·60	0·54	0·09	+0·45	2·56	5·68	− 3·12	0·25	Peshawar	North Punjab	31
4	1	17	7			2			N 56° E	5·8	4·9			53	·474	0·6	0	0·20	− 0·20	0	0·01	−0·01	11·75	10·30	+ 1·45	0	Khushab	West Punjab	32
3	1	1	6	13	5	2			S 46° E	5·6	4·8			47	·423	1·0	0	0·10	− 0·10	0·08	0·03	+0·05	4·65	7·78	− 3·13	0·08	Montgomery,		
20	3	8							N 34° E	1·6	1·7	1·2	+ 42	66	·542	1·4	0	0·20	− 0·20	0·02	0·04	−0·02	4·88	5·32	− 0·44	0·02	D. I. Khan,		
17	2	2		5	3	1		1	S 49° E	1·1	1·4	2·0	− 30	65	·542	1·3	1	0	+ 1·00	0·12	0	+0·12	4·68	5·67	− 0·99	0·12	Mooltan,		
22	1	3	1	2	1			1	N 69° E	1·3	1·4	2·2	− 36	72	·649	1·5	0	0	0	0	0	0	2·01	2·67	− 0·66	0	Jacobabad	Sind	47
7	8				2	13		1	S 76° W	6·9	7·2	7·8	− 8	55	·574	1·7	0	0	0	0	0	0	15·93	6·07	+ 9·86	0	Hyderabad,		
5	2	3	4	2	1	5	8	1	S 77° W	6·9	8·6	9·7	− 11	72	·756	2·4	0	0	0	0	0	0	10·96	6·65	+ 4·31	0	Kurrachee.		
2		2	5		4	9	6	1	S 27° W	6·3		4·0	+ 58	53	·512	1·8	0	0·30	− 0·30	0·16	0·09	+0·07	5·83	10·12	− 4·29	0·08	Bikaner	West Rajputana	51
	4		12		7	3	3	2	S 56° E	6·4	5·5	3·7	+ 49	55	·519	0	0	0·20	− 0·20	0·03	0·07	−0·04	5·08	12·49	− 7·41	0·03	Pachpadra,		
4	3	8	3	1	2	6	4		N 79° E	4·1	3·7			49	·473	2·4	0	0·30	− 0·30	0	0·17	−0·17	6·90	12·43	− 5·53	0	Jodhpur.		
																				0·22	0·63	−0·41					VIII.—East Rajputana, Central India and Gujarat.		
7	2	2	4	1	1		11	3	N 60° W	2·7		3·7	− 27	55	·502	2·5	0	0·50	− 0·50	0·06	0·22	−0·16	18·69	24·48	− 5·79	0·03	Jaipur	East Rajputana.	50
10	3	3	1			3	7	4	N 56° W	2·2	2·0			75	·651	1·1	0			0·03			29·53			0·02	Bharatpur		
8	1	2	2	3	1	7	3	4	S 62° W					60	·562	0·9	0	0·60	− 0·60	0·06	0·50	−0·44	23·49	29·11	−5·62	0·04	Kotah,		
20	2	2	2	1	1		2	1	N 31° E	3·4		4·7	− 28	58	·481	2·0	1	0·40	+ 0·60	0·16	0·13	+0·03	13·16	19·27	− 6·11	0·16	Sambhar,		
17				1	2	4	5	2	S 64° W	3·9	3·5	2·6	+ 35	67	·563	2·8	0	0·60	− 0·60	0	0·29	−0·29	16·91	20·38	− 3·47	0	Ajmer,		
31									Calm	0·7	0·7			73	·599	1·2	1	0·80	+ 0·20	0·72			21·24			0·70	Udaipur,		
		2	8	8	2	4	5	2	S 38° E	5·2		6·7	− 22	59	·611	1·5	0	0·45	− 0·45	0	0·28	−0·28	13·43	23·61	−10·18	0	Deesa,		
	5	3	4	3	1	4	5	6	N 15° E	7·6	6·4	6·0	+ 7	70	·739	1·2	0	0·50	− 0·50	0	0·28	−0·28	9·98	13·99	− 4·01	0	Bhuj	Kathiawar and Cutch,	46
	2	5	5	1	1	5	9	3	N 66° W	8·5	10·1			69	·737	2·4	0			0·07			10·24			0·05	Jamnagar,		
2	5	4	7	3			6	4	N 20° E	5·1	5·0	5·6	− 11	71	·705	2·3	1	0·90	+ 0·10	0·37	0·49	− 0·12	25·07	27·62	− 2·55	0·37	Rajkot,		
1	5	10	10	4				1	N 62° E	7·8	7·8	2·4	+225	72	·714	2·8	0	0·10	− 0·10	0	0·77	− 0·77	16·42	17·55	− 1·13	0	Veraval,		
	8	4	4	2		2	4	7	N 10° W	10·3				77	·853	3·0	0			0			12·97			0	Dwarka,		
	5	3	4	4	1		1	13	N 5° W	4·9	4·6			62	·670	2·9	0	0·90	− 0·90	0·02	0·29	−0·27	21·55	18·99	+ 2·56	0·02	Bhavnagar Para,		
10	1	1	2	2	2	7	5	1	S 47° W	1·2	1·2	1·5	− 20	73	·596	2·6	2	1·70	+ 0·30	0·20	1·25	−1·05	40·90	42·68	− 1·78	0·10	Nowgong	Central India	49
8	1	4	6	5	2	1	2	2	S 83° E	2·6	2·1	2·3	− 9	71	·623	2·6	3	2·40	+ 0·60	1·71	1·43	+0·28	27·44	32·61	− 5·17	0·82	Indore,		
9	2	5	2	4		2	6	1	N 6° E	5·2	4·7	7·9	− 41	66	·561	2·0	1	0·90	+ 0·10	0·49	0·41	+0·08	27·61	29·10	− 1·46	0·30	Neemuch,		

† Mean of 21 days.

Table

Abstract of Observations taken at 8 A.M. at 229

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
45	Gujarat	Surat	39	29·962	+·065	29·943	30·046	13th	29·850	31st	·196	81·6	94·8	+1·8	73·7	+2·9	84·3	+2·4	21·1	99·2	24th	68·0	30th	31·2
		Ahmedabad	163	29·833	+·060	29·946	29·922	6th	29·769	21st & 31st.	·153	80·9	95·7	−1·0	74·3	+2·2	85·0	+0·6	21·4	99·2	11th & 12th.	68·6	30th	30·6
22	United Provinces (West).	Agra	555	29·423	+·063	29·950	29·541	28th	29·310	19th	·231	75·8	92·8	−0·5	70·4	+2·8	81·6	+1·2	22·4	99·0	13th	63·9	29th	35·1
21	United Provinces (Central).	Jhansi	858	29·144	+·086	29·975	29·240	28th	29·037	19th	·203	76·0	92·7	−0·2	70·9	+1·8	81·8	+0·8	21·8	100·3	23rd	64·1	30th	36·2
	IX.—Deccan				+·081								89·4	+1·0	69·0	+1·6	79·2	+1·3	20·5					29·7
33	Bombay (Deccan)	Belgaum	2,539	27·448	+·057	29·929	27·522	7th & 18th.	27·323	30th	·199	72·8	82·6	−0·5	66·0	+1·0	74·3	+0·3	16·6	89·3	3rd	60·9	1st	28·4
		Sholapur	1,590	28·402	+·063	29·948	28·486	6th	28·273	30th	·213	78·5	92·0	+2·1	71·7	+3·6	81·9	+2·9	20·3	96·7	20th & 21st.	68·1	30th	28·6
		Poona	1,840	28·154	+·051	29·857	28·237	6th	28·022	31st	·215	74·9	90·4	+1·9	69·9	+3·4	80·2	+2·7	20·5	95·5	9th	62·9	29th	32·6
		Bijapur	1,946	28·049	+·067	29·948	28·125	7th & 8th.	27·921	30th	·204	76·3	89·1	+0·9	70·0	+2·2	79·6	+1·6	19·1	94·4	20th	66·3	30th	28·1
40	Khandesh	Malegaon	1,430	28·568	+·060	29·968	28·651	6th	28·454	31st	·197	76·0	90·2	−0·4	68·3	+2·5	79·3	+1·1	21·9	95·9	20th	60·1	9th	35·8
		Ahmednagar	2,152	27·870	+·070	29·973	27·951	6th	27·735	31st	·216	76·3	88·4	+0·3	69·0	+4·4	78·7	+2·4	19·4	92·4	22nd	63·0	14th & 29th.	29·4
41	Berar	Akola*	930	29·081	+·083	29·974	29·162	6th	28·976	31st	·186	77·2	92·4	+1·1	68·4	+2·2	80·4	+1·7	24·0	96·4	20th & 24th.	63.3	29th	33·1
		Amraoti	1,215	28·803	+·097	29·984	28 884	12th	28·706	31st	·178	78·1	89·8	−0·8	70·5	+2·3	80·2	+0·8	19·3	94·2	21st & 24th.	66·5	30th & 31st.	27·7
42	Central Provinces (West).	Khandwa	1,044	28·965	+·086	29·983	29·038	12th	28·865	31st	·173	76·4	92·4	+1·3	68·0	+1·7	80·2	+1·5	24·4	97·2	19th & 24th.	62·6	30th	34·6
		Hoshangabad	1,006	29·018	+·088	30·005	29·089	12th	28·948	31st	·141	73·9	88·0	−0·6?	67·0	+0·1?	78·0	−0·3?	22·0	92·8	13th	62·7	30th	30·1
		Nagpur	1,025	28·990	+·104	29·989	29·073	12th	28·928	31st	·145	75·8	91·0	+0·9	69·7	+1·3	80·4	+1·1	21·3	95·1	20th & 23rd.	66·6	20th	28·5
43	Central Provinces (Central).	Chanda	634	29·400	+·118	29·989	29·487	12th	29·325	31st	·162	78·8	91·4	+1·3	69·5	+1·0	80·5	+1·2	21·9	95·2	20th, 21st & 23rd.	66·0	18th	29·2
		Seoni	2,033	27·990	+·095	29·990	28·063	12th	27·928	31st	·135	74·0	87·3	+0·7	64·9	+0·7	76·1	+0·7	22·4	92·3	20th	60·5	29th	31·8
		Jubbulpore	1,327	28·674	+·085	29·987	28·760	12th	28·608	19th	·152	72·4	88·0	+0·6	64·9	+0·9	76·5	+0·8	23·1	92·0	22nd	58·8	24th	33·2
		Saugor	1,807	28·209	+·092	29·991	28·276	6th	28·127	19th	·149	74·8	88·2	+0·6	67·2	+1·5	77·7	+1·1	21·0	93·4	13th	59·1	30th	34·3
49	Central India	Sutna	1,040	28·955	+·087	29·979	29·022	12th	28·877	19th	·145	73·4	88·1	+0·2	67·3	+1·6	77·7	+0·9	20·8	91·9	9th	60·2	30th	31·7
44	Central Provinces (East).	Raipur	970	29·037	+·095	29·971	29·125	12th	28·975	1st	·150	77·7	90·5	+2·2	67·5	−2·2	79·0	0	23·0	93·9	4 days	61·4	30th	32·5
		Sambalpur	486	29·531	+·099	29·974	29·607	12th	29·455	2nd	·152	78·4	91·0	+2·2	70·1	−1·8	80·6	+0·2	20·9	93·1	11 days	66·6	4 days	26·5
39	Hyderabad (North).	Aurangabad	1,905	28·112		29·967	28·208	6th	27·980	31st	·228	77·6	88·9		68·0		78·4		20·9	92·9	20th	64·7	6th	28·2
		Indur		28·763			28·838	12th	28·600	31st	·238	77·9	88·3		70·4		79·4		17·9	92·8	20th	68·0	30th	24·8
		Bidar	2,165	27·845		29·956	27·929	12th	27·724	31st	·205	76·9	85·9		68·9		77·4		17·0	90·6	2nd	64·3	30th	26·3
53	Hyderabad (South).	Gulbarga	1,503	28·493	+·066	29·951	28·577	12th	28·340	30th	·237	78·7	91·7	+1·7	71·2	+2·2	81·5	+2·0	20·5	95·7	18th	67·6	11th	28·1
		Raichur	1,326	28·662	+·077	29·948	28·750	12th	28·510	30th	·240	78·5	89·9	+0·9	73·2	+1·0	81·5	+1·0	16·7	93·1	8 days	69·1	29th & 30th.	24·0
		Hyderabad (Dn.)	1,690	28·312	+·083	29·963	28·415	12th	28·164	30th	·251	76·2	89·2	+1·6	70·4	+2·3	79·8	+2·0	18·8	94·4	20th	67·2	30th	27·2
		Secunderabad	1,787	28·218	+·075	29·969	28·312	12th	28·072	30th	·240	75·1	89·6	+2·0	69·7	+1·6	75·7	+1·8	19·9	94·6	20th & 21st.	67·0	30th	27·6
		Hanumkonda	871	29·125		29·951	29·212	12th	29·030	31st	·182	78·3	89·7		71·1		80·4		18·6	95·5	21st	65·7	18th	29·8
	X.—West Coast				+·044								86·4	+0·5	75·7	+1·1	81·1	+0·8	10·7					17·2
37	Konkan	Bombay	37	29·947	+·049	29·924	30·017	6th	29·836	31st	·181	81·4	89·5	+2·0	79·0	+2·5	84·3	+2·3	10·5	93·0	29th	74·0	15th	19·0
		Ratnagiri	110	29·870	+·066	29·918	29·943	5th	29·768	30th	·175	80·0	89·3	+1·1	75·4	+1·4	82·4	+1·3	13·9	93·9	25th	71·9	17th	22·0
		Mormugao	60	29·916	+·044	29·911	29·989	12th	29·821	30th	·168	79·0	86·0	0	75·9	+0·3	81·0	+0·2	10·1	89·0	24th	72·9	9th & 27th	16·1
		Goa	199									80·0	85·0	−0·3	77·7	+2·2	81·4	+1·0	7·3	88·0	23rd & 24th.	75·0	1st	13·0
		Karwar	44	29·930	+·044	29·906	30·008	12th	29·828	30th	·180	77·2	86·6	+1·2	73·9	+0·5	80·2	+0·9	12·7	92·3	23rd	71·5	1st & 9th	20·8
33	Malabar	Cochin	11	29·978	+·044	29·915	30·057	12th	29·891	30th	·166	78·9	87·2	+1·0	75·0	+0·4	81·1	+0·7	12·2	91·3	6th	72·7	12th	18·6
		Calicut	27	29·950	+·035	29·906	30·047	12th	29·858	30th	·189	78·9	86·1	−0·1	74·3	−0·2	80·2	−0·2	11·8	89·3	16th	72·5	12th & 29th.	16·8
		Mangalore	65	29·903	+·025	29·900	29·990	7th	29·794	30th	·196	79·6	85·7	0	75·3	+0·7	80·5	+0·4	10·4	88·7	19th & 24th.	73·4	30th & 31st.	15·3
		Trivandrum	198	29·787	+·047	29·917	29·871	12th	29·706	27th	·165	77·3	82·3	−0·4	74·6	+1·8	78·5	+0·7	7·7	85·5	2nd & 3rd.	72·5	10th & 30th.	13·0

* Observation of 30 days.

I—*continued.*

Stations in India, Burma, etc., in October, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	S.W.	W.	N.W.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 31st October 1902.	Normal rainfall for period, 1st May to 31st October.	Variation from normal for period, 1st May to 31st October 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
2	7	6	10	2	4				N 69° E	4·1	3·9	5·1	−24	69	·750	1·6	2	2·20	−0·20	0·28	2·00	−1·72	53·74	43·73	+10·01	0·16	Surat . .	Gujarat . .	45
	1	7	4	8		2		9	N 52° E	2·2	3·6			62	·656	2·1	0	0·80	−0·80	0	0·77	−0·77	27·90	32·56	−4·66	0	Ahmedabad		
12				5		12		2	S 31° W	2·7	3·1	3·0	+ 3	63	·561	0·7	0	0·60	−0·60	0·04	0·38	−0·34	22·57	26·81	−4·24	0·04	Agra . .	United Provinces (West).	22
6	1	2		1	1	15	2	3	S 58° W	3·2	3·6	2·6	+38	71	·635	1·2	1	0·90	+0·10	0·24	0·64	−0·40	32·75	36·73	−3·98	0·22	Jhansi, .	United Provinces (Central).	21
																				2·24	2·73	−0·48					IX.—Deccan.		
13	1	3	7	5	1		1		S 83° E	7·5		10·5	−28	83	·661	6·1	13	8·70	+4·30	9·09	5·96	+3·13	42·32	45·85	−3·53	1·62	Belgaum .	Bombay Deccan.	38
	2	7	3	19					S 73° E	9·2	11·1	7·4	+50	62	·591	5·0	3	4·70	−1·70	3·11	4·16	−1·05	24·93	28·57	−3·64	1·27	Sholapur,		
7		1	5	2	1	2	1	4	S 80° E	5·8†	6·6†	5·8	+14	76	·662	5·1	4	5·60	−1·60	3·63	4·40	−0·77	21·27	25·82	−4·55	1·43	Poona,		
	5	3	11	5	3	1	2	1	N 87° E					76	·683	5·7	6	6·60	−0·60	3·59	4·50	−0·91	15·17	21·94	−6·77	1·28	Bijapur,		
	6	6	4	1	1		5	8	N 7° W	3·3	3·8	4·5	−16	70	·631	5·5	3	3·00	0	1·01	2·42	−1·41	17·76	23·04	−5·28	0·40	Malegaon .	Khandesh, .	40
14	1	7	2	5	2				N 88° E	2·3	2·8			65	·591	5·1	2	5·20	−3·20	1·41	2·14	−0·73	25·60	20·27	+5·33	0·96	Ahmednagar,		
15		4	8	3					N 87° E	3·0	2·9	3·3	−12	68	·627	4·2	3	2·70	+0·30	1·50	2·74	−1·24	25·84	31·74	−5·90	1·07	Akola .	Berar . .	41
	1	9	8	2	4	3	3	1	N 87° E	6·0	5·3	2·9	+83	62	·595	4·6	4	2·40	+1·60	3·30	2·33	+0·97	27·04	32·36	−5·32	2·05	Amraoti,		
13	2		5	5	2	1	1	2	S 62° E	3·3		2·9	+14	69	·619	2·9	3	2·00	+1·00	1·43	1·45	−0·02	30·24	30·13	+0·11	0·69	Khandwa .	Central Provinces (West).	42
		18		2		10		1	N 52° E	1·8	1·8	1·5	+20	76	·638	1·8	2	2·10	−0·10	1·91	1·75	+0·16	30·61	50·24	−19·63	1·35	Hoshangabad		
11	1	8	7	1	1			2	N 62° E	4·0		4·3	− 7	70	·626	3·9	3	3·10	−0·10	1·02	2·43	−1·41	26·26	46·43	−20·17	0·37	Nagpur,		
16	3	3	2	2	2			3	N 42° E	4·6‡	4·1‡	2·3	+78	71	·709	2·9	1	2·70	−1·70	0·13	2·00	−1·87	28·40	51·88	−23·48	0·12	Chanda .	Central Provinces (Central).	4
	4	9	2	2	2	5	3	4	N 4° E	3·3		3·1	+6	67	·561	2·5	4	2·80	+1·20	0·91	2·03	−1·12	28·50	51·75	−23·25	0·27	Seoni,		
2	1	1	1	9	12	5			S 13° E	1·9	1·7	2·1	−19	79	·629	1·8	0	2·20	−2·20	0·10	1·86	−1·76	35·76	56·44	−20·68	0·04	Jubbulpore,		
	1	1	3	9	4	8	5		S 2° W	3·6	4·1	2·7	+52	58	·498	2·4	1	2·10	−1·10	0·32	1·27	−0·95	31·36	46·11	−14·75	0·28	Saugor,		
6	6	1	1			2	6	9	N 46° W	2·2	2·4	4·3	−44	74	·617	2·9	2	2·10	−0·10	1·08	2·45	−1·37	32·98	43·00	−10·02	0·60	Sutna .	Central India.	49
9	3	7	3		3	4	1	1	N 50° E	2·8	2·6	3·8	−32	71	·672	2·9	1	3·10	−2·10	0·19	2·09	−1·90	27·28	48·21	−20·93	0·11	Raipur .	Central Provinces (East).	44
	6	9	3	2	1	6	1	3	N 24° E	4·2	4·1	2·0	+105	73	·717	3·2	1	3·60	−2·60	1·02	1·92	−0·90	51·00	64·10	−13·10	0·99	Sambalpur.		
11	1	5	10	3			1		N 80° E	7·1	7·0			63	·595	5·0	5	3·40	+1·60	3·60	2·36	+1·24	27·09	28·66	−1·57	1·93	Aurangabad,	Hyderabad (North).	39
26	1	1		3					S 79° E	5·1	4·3			71	·680	4·1	3	2·90	+0·10	1·15	2·09	−0·94	31·63	37·14	−5·51	0·50	Indur,		
		4	6	5	7	8	1		S 25° E	6·5	5·5			73	·666	2·6	4	4·40	−0·40	4·42	3·07	+1·35	25·06	36·21	−11·15	1·57	Bidar,		
10		4	7	5	4		1		S 67° E	8·5	8·1			72	·700	3·5	4	5·00	−1·00	2·98	3·09	−0·11	24·72	29·35	−4·63	1·30	Gulbarga .	Hyderabad (South).	53
4	1	4	5	14	1	1	1		S 64° E	7·7	7·3			67	·645	2·0	5	4·20	+0·80	2·16	4·31	−2·15	22·72	28·64	−5·92	0·85	Raichur,		
21		2	5	3					S 86° E	4·1	4·0			76	·684	4·1	6			3·63	2·71	+0·92	23·44	28·45	−5·01	1·08	Hyderabad (Dn.),		
11		7	9	2			1	1	N 73° E	3·9		3·6	+3	78	·684	3·5	6	4·60	+1·40	3·66	2·71	+0·95	23·83	28·45	−4·62	1·20	Secunderabad		
13	2	2		5	6	3			S 19° E	5·0	4·3			75	·732	3·8	4	4·10	−0·10	1·80			19·76			0·72	Hanumkconda		
																				6·47	7·47	−1·00					X.—West Coast.		
	6	11	12	1	1				N 59° E	8·0		9·8	−20	82	·887	4·4	2	2·70	−0·70	0·78	2·24	−1·46	71·15	74·45	−3·30	0·42	Bombay .	Konkan . .	37
10	1	4	9	6					S 89° E	3·8	3·8	7·7	−51	81	·836	4·8	6	5·00	+1·00	4·58	4·47	+0·11	93·68	106·61	−12·93	1·31	Ratnagiri,		
5	1	4	8	8	2	1		2	S 78° W	6·3§				89	·890	6·0	9			3·33	6·17	−2·84	121·68	91·18	+30·50	0·88	Mormugao,		
3	1	12	11		2	2			N 72° E					83	·846	6·8	7			2·30	5·42	−3·12	123·68	96·66	+27·02	0·73	Goa,		
21		4	6						N 71° E	2·7				87	·813	4·5	11	8·50	+2·50	6·47	7·26	−0·79	147·78	120·97	+26·81	2·42	Karwar,		
5	2	16	5	1	1	1			N 57° E	4·2				86	·855	5·8	17	14·80	+2·20	14·42	13·921	+0·50	106·53	98·96	+7·57	2·88	Cochin .	Malabar . .	33
8	2	4	9	8					S 87° W	5·1	6·4			86	·855	6·3	13	11·80	+1·20	13·10	9·75	+3·35	119·41	104·12	+15·29	2·92	Calicut,		
17	1		7	5		1			S 72° E	2·2		2·7	−19	85	·862	5·7	6	10·30	−4·30	3·77	7·55	−3·78	144·30	119·04	+25·26	1·16	Mangalore.		
18	5					1	2	5	N 38° W	2·9				85	·805	7·1	14	11·90	+2·10	9·52	10·49	−0·97	44·41	46·63	−2·22	2·67	Trivandrum.		

† Mean of 23 days. ‡ Mean of 30 days. § Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 229

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
					+·069								87·9	-0·4	72·5	-0·2	80·2	-0·3	15·4					26·3
	XI.—South India.																							
7	Madras (South)	Pamban	37	29·950		29·914	30·037	12th	29·839	30th	·198	80·7	87·0		76·7		81·9		10·3	90·3	4th	73·2	23rd	17·1
		Tinnevelly	168	29·811	+·057	29·909	29·896	12th	29·692	30th	·204	80·1	90·5	-3·2	75·4	-1·2	83·0	-2·2	15·1	97·3	1st, 3rd & 5th.	71·4	6th	25·9
		Madura	447	29·529	+·065	29·916	29·629	6th	29·400	30th	·229	79·4	88·9	-2·4	73·5	-0·5	81·2	-1·5	15·4	94·4	4th	70·0	11th	24·4
		Periyakulam	945	29·035			29·117	6th	28·914	30th	·203	76·8	88·3		71·5		78·2		16·8	96·7	3rd	65·5	21st	31·2
24	Madras (South-Central).	Salem	940	29·053	+·046	29·942	29·146	12th	28·933	29th	·213	77·8	89·4	-0·2	70·9	-0·2	80·2	-0·2	18·5	95·2	4th	63·4	20th	31·8
		Coimbatore	1,348	28·635	+·057	29·989	28·723	12th	28·516	30th	·207	76·3	87·5	-0·8	71·0	+0·4	79·3	-0·2	16·5	96·4	3rd	68·3	21st	30·1
35	Coorg	Mercara	3,781	26·283	+·047		26·358	12th	26·170	30th	·188	66·6	76·7	+0·9	62·0	-0·2	69·4	+0·4	14·7	81·5	3rd & 4th	57·1	22nd	24·4
36	Mysore	Chitaldroog	2,405	27·583	+·045	29·917	27·674	12th	27·436	30th	·238	74·6	85·2	+0·6	68·4	+0·6	76·8	+0·6	16·8	92·6	5th	64·9	10th	27·7
		Bangalore	3,021	27·093	+·047	29·996	27·096	12th	26·867	30th	·229	71·1	81·8	+0·4	65·0	-0·2	73·3	+0·1	16·8	86·8	4th	56·4	21st	30·4
		Hassan	3,091	26·931	+·041	29·941	27·007	18th	26·804	30th	·203	71·4	81·5	+0·1	64·0	-0·3	72·7	-0·1	17·5	87·0	4th	57·5	21st	29·5
		Mysore	2,518	27·484	+·040	29·935	27·579	12th	27·371	30th	·208	73·7	85·0	+0·9	67·0	0	76·0	+0·5	18·0	90·1	1st, 4th & 6th.	60·4	21st	29·7
56	Madras, East Coast, South.	Negapatam	31	29·939	+·056	29·899	30·023	12th	29·823	28th & 29th	·200	81·2	87·1	-1·3	76·9	+1·0	82·0	-0·2	10·2	93·2	3rd	72·5	26th	20·7
		Cuddalore	12	29·868	+·070	29·909	30·061	12th	29·833	29th	·228	79·3	86·0	-2·1	74·6	-0·1	80·3	-1·1	11·4	89·7	5 days	70·7	20th	19·0
		Trichinopoly	255	29·730	+·066	29·920	29·818	12th	29·603	30th	·215	79·0	88·8	-2·2	74·2	-0·1	81·5	-1·2	14·6	96·6	6th	69·9	20th	26·7
		Madras	22	29·961	+·067	29·914	30·068	12th	29·777	28th	·291	80·2	88·2	-0·8	73·8	-1·3	81·0	-1·1	14·4	93·0	6th & 19th	68·5	20th	24·5
		Vellore	707	29·285		29·921	29·353	12th	29·097	29th	·256	77·3	87·9		73·6		80·8		14·3	97·4	3rd	66·5	19th	30·9
55	Madras, East Coast, Central.	Nellore	71	29·924	+·094	29·929	30·016	12th	29·753	29th	·263	80·5	89·4	-1·8	75·2	-0·6	82·3	-1·2	11·2	94·8	1st	71·1	20th	23·7
		Masulipatam	15	29·991	+·103	29·941	30·087	12th	29·874	30th	·213	81·3	88·5	-0·4	75·2	-0·8	81·9	-0·6	13·3	93·1	20th	71·1	29th & 30th.	22·0
54	Madras, Central	Cuddapah	433	29·548	+·066	29·923	29·655	12th	29·374	29th	·281	80·9	92·5	+0·6	73·7	-0·5	83·1	+0·1	18·8	97·2	1st & 20th	69·6	21st & 29th.	27·6
		Kurnool	958	29·043	+·089	29·951	29·198	12th	28·873	30th	·275	79·3	92·0	+1·1	71·4	+0·4	81·7	+0·8	20·6	95·7	6th & 7th	66·9	21st	28·8
		Bellary	1,475	28·512	+·069	29·945	28·588	7th	28·353	30th	·235	76·7	91·2	+1·5	71·0	-0·1	81·1	+0·7	20·2	98·0	5th	67·2	12th	30·8
52	Madras, East Coast, North.	Cocanada	26	29·978	+·099	29·939	30·069	12th	29·901	31st	·168	81·4	88·4	+0·5	75·7	-0·1	82·1	+0·2	12·7	95·1	20th	70·5	29th	24·6
		Waltair (Vizag.)	226	29·780	+·102	29·949	29·875	12th	29·718	31st	·157	81·9	88·5	-0·5	76·5	+0·2	82·6	-0·2	12·0	92·9	20th	69·9	30th	23·0
		Gopalpur	21	29·988	+·104	29·949	30·077	12th	29·919	1st & 2nd.	·158	80·1	88·9	+1·3	73·2	-1·0	81·1	+0·2	15·7	93·8	20th	68·1	30th	25·7
	XII.—Hill Stations.																							
48	Baluchistan	Sharigh											75·4		39·4		57·5		36·0	82·3	2nd & 4th	32·0	31st	50·3
		Pishin																						
		Quetta	5,502	24·781	+·053		24·864	18th	24·707	8th	·157	56·4	75·1	+0·5	42·9	+4·6	59·0	+2·6	32·2	81·7	1st & 4th	35·8	18th	45·9
		Kalat										59·9	75·6	+1·9	27·9	-1·7	51·8	+0·1	47·7	83·9	11th	17·6	18th	66·3
		Chaman	4,311	25·844	+·045		25·930	18th	25·738	8th	·192	66·7	79·6	+0·9	54·8	+4·1	67·3	+2·5	24·8	87·2	4th	44·1	31st	43·1
		Leh	11,503	19·812	+·032		19·917	12th	19·695	19th	·222	39·2	55·5	-3·1	31·6	+1·7	43·6	-0·7	23·9	69·8	1st	25·5	26th	44·1
30	Punjab and North-West Frontier Provinces.	Srinagar	5,204	25·054	+·069		25·157	6th	24·950	25th	·207	47·4	70·7	+1·0	42·0	+2·2	56·4	+1·6	28·7	82·8	1st	34·1	23rd	48·7
		Sonemarg		21·911			21·975	23rd	21·763	18th	·212	35·3	63·9		30·0		47·0		33·9	77·8	11th	23·1	24th & 28th.	54·7
		Minimarg																						
		Skardu		22·971			23·087	12th	22·819	18th	·268	48·3	67·6		42·1		54·9		25·5	80·5	1st	32·1	25th	48·4
		Dras		20·894			20·983	12th	20·773	25th	·210	39·8	59·8		27·4		43·6		32·4	71·9	1st	19·1	26th & 28th.	52·8
		Gilgit	4,890	25·258			25·406	22nd	25·064	1st	·342	51·9	75·8	+2·0	52·6	-0·5	64·2	+0·8	23·2	91·3	1st	45·9	25th	45·4
		Chitral		24·639			24·750	4 days	24·550	4 days	·200	49·6	75·8		46·7		61·3		29·1	87·6	3rd	39·0	20th	48·6
		Killa Drosh										55·1	74·9		52·6		63·7		22·3	86·2	12th	44·9	31st	41·3
		Para Chinar	6,000	24·583			24·679	26th	24·483	8th	·196	59·4	71·5		50·3		61·0		21·2	79·7	2nd	42·2	31st	37·5
		Cherat		25·819	+·066		25·924	28th	25·740	19th	·184	62·8	76·0	-2·6	58·0	+0·8	67·0	-0·9	18·0	84·3	6th	50·0	31st	34·3

Mean of 32 days.

I—*continued.*

Stations in India, Burma, etc., in October, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 31st October 1902.	Normal rainfall for period, 1st May to 31st October.	Variation from normal of period, 1st May to 31st October 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				11·31	7·59	+3·72					**XI.—South India.**		
2	6	5	4	3	1	3	4	3	N 9° E	6·7	7·1			84	·882	5·4	16	9·50	+6·50	13·42	8·63	+4·79	15·17	11·59	+3·58	2·22	Pamban	Madras (South).	57
1	6	1	3	3		2	3	12	N 31° W	3·5	3·4			83	·858	5·5	15	8·40	+6·60	10·38	6·30	+4·08	15·34	10·28	+5·06	1·80	Tinnevelly,		
8	12	7	1					3	N 8° E	0·8	0·8	2·9	−72	78	·791	5·9	15	11·40	+3·60	11·29	8·61	+2·68	29·95	23·25	+6·70	1·90	Madura,		
18	3	1	3	1	4	1			S 63° E	2·0	2·2			81	·747	5·8	15	10·60	+4·40	8·92	7·55	+1·37	17 82	16·47	+1·35	1·97	Periyakulam,		
17		4	7		1	1	1		N 82° E	2·8	2·5	2·8	−7	83	·797	5·8	11	9·50	+1·50	9·08	6·72	+2·36	33·91	32·20	+7·74	3·54	Salem	Madras (South Central).	34
		12	14	5					N 79° E	1·8	1·6	3·5	−54	86	·785	5·4	15	9·40	+5·60	13·24	5·98	+7·26	25·77	13·58	+12·19	3·05	Coimbatore,		
13	2	2	10				2	2	N 59° E	4·9	4·1	3·6	+14	89	·595	7·9	11	13·00	+1·00	7·14	8·61	−1·47	103·90	118·93	−15·03	1·26	Mercara	Coorg	35
2	1	2	10	9		2	4	1	S 67° E	6·4	5·6			75	·640	5·1	12	7·70	+4·30	14·81	3·28	+11·53	23·19	21·00	+2·19	3·59	Chitaldroog	Mysore	36
1	1	6	13	5	2	1	1	1	S 89° E	7·6	6·6	4·0	+65	82	·632	5·6	11	9·30	+1·70	8·66	6·36	+2·30	28·19	29·28	−1·09	2·52	Bangalore,		
3		7	11	6	1	1		2	N 89° E	2·8	2·4			82	·624	6·7	9	9·50	−0·50	12·10	6·64	+5·46	32·29	28·72	+3·57	5·35	Hassan,		
1	1	6	10	3	2	3	4	1	S 88° E	6·2	6·7			78	·646	7·5	11	9·40	+1·60	9·63	6·98	+2·65	24·58	25·01	−0·43	4·39	Mysore,		
7	5	1	1		1	1	6	9	N 48° W	5·8	5·1	3·7	+38	83	·893	6·8	15	11·00	+4·00	12·30	11·65	+0·65	20·49	23·75	−3·26	3·85	Negapatam	Madras, East Coast, South.	56
20	2		1		1	1	2	4	N 55° W	2·0	2·5			88	·885	8·9	15	10·00	+5·00	18·62	11·66	+6·96	32·57	29·01	+3·56	5 62	Cuddalore		
25	2	3					1		N 15° E	2·6		3·8	−32	85	·836	6·1	13	9·70	+3·30	10·14	7·15	+2·99	22·63	21·16	+1·47	2·12	Trichinopoly,		
	6	9	3	2	2	5	2	2	N 29° E	4·6		5·0	−8	84	·874	6·0	14	12·50	+1·50	20·67	11·45	+9·22	33·38	28·93	+4·45	9·16	Madras,		
12		2		4	1	4	5	3	S 63° W	1·8	1·8			83	·782	6·4	13	9·30	+3·70	9·09	7·51	+1·58	35·08	28·18	+6·90	4·53	Vellore,		
10	2		1	3	5	1	3	6	S 71° W	2·5				82	·845	6·7	14	8·70	+5·30	14·13	7·33	+6·80	32·44	20·14	+12·30	3·55	Nellore	Madras, East Coast, Central.	55
9	10	8	1	1				2	N 20° E	5·7	5·5	4·4	+25	84	·894	3·1	8	8·60	−0·60	20·06	8·42	+11·64	41·67	32·95	+8·72	9·50	Masulipatam,		
		12	5	13	1				S 86° E					74	·774	4·1	6	6·70	−0·70	6·15	5·78	+0·37	24·98	26·73	−1·75	2·89	Cuddapah	Madras, Central.	54
13	1	4	3	6	1	2		1	S 75° E	4·4*				70	·699	3·6	4	5·90	−1·90	3·31	4·01	−0·70	17·51	25·81	−8·30	1·48	Kurnool,		
5	4	2	3	9	4			4	S 76° E	4·0	4·2	4·3	−2	71	·651	5·3	7	6·70	+0·30	5·33	4·27	+1·06	19·02	16·65	+2·37	1·66	Bellary,		
	9	12						10	N 3° E	9·7	8·1			77	·826	4·3	8	9·40	−1·40	17·79	8·72	+9·07	39·98	31·64	+8·34	6·40	Cocanada	Madras, East Coast, North.	52
1		12	1		1	14	2		S 45° W	8·4				70	·757	4·3	5	8·20	−3·20	9·89	10·23	−0·34	30·78	34·39	−3·61	3·93	Waltair (Vizag.)		
	15					1		15	N 25° W	8·4	8·2	6·3	+30	77	·777	0·9	2	7·90	−5·90	1·10	9·41	−8·31	29·77	40·50	−10·73	0·56	Gopalpur		
																											XII.—Hill Stations.		
																		0·30			0·07						Sharigh	Baluchistan	48
																	1	0·20	+0·80	0·42	0·09	+0·33	0·42	0·55	−0·13	0·33	Pishin,		
29				1			1		S 23° W	1·2	1·3	3·0	−57	57	·251	1·6	2	0·20	+1·80	0·98	0·09	+0·89	1·63	2·41	−0·78	0·54	Quetta,		
	2		5		23		1		S 11° E					45	·223		1	0·30	+0·70	0·13	0·08	+0·05	1·59	1·73	−0·14	0 13	Kalat,		
16				6	6	2		1	S 11° E	7·3	8·0			47	·288	1·8	2	0·10	+1·90	0·83	0·04	+0·89	0·95	0·32	+0·63	0·54	Chaman,		
		1	2	1	2	10	15		S 64° W	2·1				49	·118	3·5	1	0·10	+0·90	0·21	0·22	−0·01	1·43	1·75	−0·32	0·09	Leh	Punjab and North-West Frontier Province.	30
21	1	1	1	3	3			1	S 49° E	1·7	1·8			86	·283	2·9	3	2·70	+0·30	0·87	0·84	+0·03	12·00	11·25	+0·75	0·41	Srinagar,		
20		5	3				2	1	N 47° E	6·1	5·6			88	·187	3·3	4			0·78			17·53			0·30	Sonemarg,		
																											Minimarg.		
22		2	1		1	3	2		S 45° W	4·2	4·2?			53	·172†	2·9†	0	0·10	−0·10	0	0·02	−0·02	1·41	2·95	−1·54	0	Skardu,		
26				2		2	1		S	6·1	6·3			60	·146	2·4	0	3·10	−3·10	0·02	0·99	−0·97	4·43	6·45	−2·02	0·01	Dras,		
29						2			S 45° W	3·5	3·1			46	·220	4·0	1	0·30	+0·70	0·29	0·20	+0·09	2·50	2·55	−0·05	0·29	Gilgit,		
38					1				S					83	·297	1·8	4			1·81			2·91			0·61	Chitral,		
29					2				S					59	·256	2·3	7			3·00			5·87			0·82	Killa Drosh,		
30	1								N	2·8				55	·270	1·4	7	1·00	+6·00	2·26	0·37	+1·89	12·77	12·83	−0·06	0·52	Para Chinar,		
	5	9		4	4	2			N 22° E	7·8	7 3			54	·304	2·1	3			0·99	0·09	+0·90	10·01	11·92	−1·91	0·51	Cherat,		

* Mean of 18 days.

Table

Abstract of Observations taken at 8 A.M. at 229

Number of District.	Meteorological Province or District.	Station.	Elevation of Barometer above sea-level, in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	Punjab and North-West Frontier Province—*concld.*	Murree	6,333	23·971	+·052		24·035	12th	23·874	19th	·161	57·2	66·4	−2·9	49·2	−4·1	57·8	−3·5	17·2	72·2	1st	38·0	31st	34·2
		Poe											64·5		40·7		52·6		23·8	70·6	1st	34·1	26th	36·5
		Simla	7,224	23·240	+·063		23·305	6th	23·156	19th	·149	53·1	60·2	−2·2	49·3	−1·7	54·8	−2·0	10·9	65·4	1st	42·8	20th	22·6
25	United Provinces.	Chakrata	7,022	23·394	+·054		23·453	6th	23·321	16th	·132	52·9	63·1	−3·1	48·7	−2·2	55·9	−2·7	14·4	67·2	7th, 10th & 13th	42·1	26th	24·8
		Mussooree	6,705	23·677	+·081		23·776	15th	23·603	19th	·173	54·7	62·2	−2·7	50·3	−1·2	56·3	−2·0	11·9	66·2	7th	44·0	20th	22·2
		Ranikhet	6,069	24·226	+·072		24·280	6th & 12th.	24·157	8th	·123	56·7	66·7	−2·5	52·6	−1·6	59·7	−2·1	14·1	70·0	1st & 12th.	46·0	26th	24·0
		Muktesar	7,600	22·963			23·028	12th	22·900	8th	·128	53·5	63·9		46·7		55·3		17·2	67·6	4th	39·4	26th	28·2
13	Bengal	Darjeeling	7,376	23·117	+·026		23·177	12th	22·956	16th	·221	52·0	58·2	−2·3	47·4	−2·4	52·9	−2·4	10·8	66·7	2nd	43·6	27th	23·1
8	Assam Hill Tracts	Shillong	4,920	25·251			25·330	12th	25·186	8th	·144	61·7	69·2		52·3		60·8		16·9	75·6	3rd	47·0	2 days	28·6
		CherraPoonjee	4,309	25·807			25·881	12th	25·753	2 days	·128	64·5	70·2		58·1		64·2		12·1	75·8	2nd	54·5	2 days	21·3
	Central India	Mount Abu	3,945	26·165	+·053		26·246	12th	26·078	20th	·168	71·4	77·6	−1·2	61·0	−0·3	70·9	−0·8	13·6	82·2	13th	60·4	29th, 30th & 31st.	21·8
		Pachmarhi	3,528	26·573	+·080		26·652	12th	26·484	31st	·168	71·3	81·2	+3·1	60·2	+0·5	70·7	+1·8	21·0	84·6	13th	55·7	29th	28·9
	South India	Wellington	6,200	24·297	+·035		24·368	6th & 7th.	24·198	29th	·170	61·4	69·8	+0·7	55·0	+0·2	62·4	+0·5	14·8	74·2	31st	44·7	21st	29·5
		Kodai Kanal	7,688	22·872			22·951	12th	22·784	29th	·167	55·7	62·6		51·1		55·3		11·5	67·5	2nd	45·7	21st	21·8
		Ootacamund		23·103			23·175	7th	23·017	29th	·158	57·8	64·1		51·5		57·8		12·6	68·5	16th	46·7	22nd	21·8
		Dodabetta*		22·047			22·126	6th	21·947	29th	·179	55·8	56·9		47·1		52·0		9·8	59·4	15th	43·5	20th	16·9
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·974	?	29·912	30·015	7th	29·887	27th	·158	79·1	87·4	−1·0	75·5	0	81·5	−0·5	11·9	92·0	1st	73·0	11th	17·0
		Colombo	40	29·949	+·03	29·915	30·033	7th	29·868	27th	·165	79·5	86·5	+0·8	74·1	−1·3	80·3	−0·3	12·4	90·5	2nd	72·5	25th & 28th.	18·0
	Persia	Meshed	3,104									52·8			45·8	+1·2						33·4	31st	
		Teheran		¶26·015			26·250	18th	25·840	10th	·410	62·3	76·1	−1·4	54·3	+0·2	65·2	−0·6	21·8	88·7	6th	43·8	17th	44·9
		Ispahan		¶24·384			24·550	18th	25·230	14th	·320	57·6	77·4	0	41·2	−3·2	59·3	−1·6	36·2	85·4	6th	33·3	17th	53·1
		Bushire	14	29·984	+·039	29·957	30·121	18th	29·845	9th	·276	75·5	85·2	−2·6	69·6	−1·6	77·4	−2·1	15·6	90·1	25th	63·2	31st	26·9
		Bahrein§§	30	29·936			30·050	19th	29·848	10th	·202	81·5	88·2		66·3		77·2		21·9	93·0	2nd	55·9	10th	37·1
		Jask††		29·967	+·034		30·101	18th	29·838	9th	·263	82·3	89·3	−1·7	76·8	+1·1	83·1	−0·3	12·5	96·3	6th	71·2	20th	25·1
		Muscat	20	29·995	+·045	29·963	30·162	20th	29·782	1st	·380	83·7	85·7	−0·1	81·8	+0·7	83·8	+0·3	3·9	91·5	6th	74·7	24th	16·8
	Arabia	Baghdad	220	29·872	+·048	30·073	30·086	18th	29·672	23rd	·414	67·2	89·6	−3·2	62·8	+0·6	76·3	−1·3	26·8	100·3	3rd & 4th	50·8	30th	49·5
		Bussrah		30·022			30·197	19th	29·893	9th	·304		85·4		66·7		76·1		18·7	92·4	3 days	58·0	31st	34·4
		Aden ††	94	29·858	−·016	29·883	30·028	7th	29·704	22nd	·324	84·2	89·6	−0·5	78·3	+0·6	83·9	+0·1	11·3	97·3	18th	74·9	15th	22·4
		Perim	201	29·746	+·012	29·879	29·854	7th	29·656	26th	·198	85·3	91·8	+0·7	80·7	+0·2	86·3	+0·5	11·1	95·9	18th	79·2	30th & 31st.	16·7
												50·9	78·0	+2·7	42·0	+0·6	60·0	+1·7	36·0	88·1	2nd & 9th	24·8	31st	53·3
	Afghanistan	Kabul																						
	Central Asia	Kashgar	4,255	**25·712			25·910	21st & 22nd.	25·550	9th & 30th.	·360	52·6	74·6	+5·9	45·0	+2·9	59·8	+4·4	29·6	82·1	6th	37·8	24th & 26th.	44·3
	Arabian Sea Islands.	Amini Debi	13	29·969	+·039	29·910	30·083	7th.	29·876	26th	·207	82·6	87·0	+1·8	76·1	−0·4	81·6	+0·7	10·9	89·4	6th	72·2	7th	17·2
		Minicoy	7	29·976		29·908	30·063	6th	29·899	26th	·164	81·0	84·9	−0·7						89·0	5th			
	Africa	Zanzibar	73	30·025	+·011	30·025	30·141	8th	29·920	31st	·221	78·3	83·1	−0·1	75·4	+0·1	79·8	0	7·7	86·0	26th	71·9	13th	14·1
		Do. Dunga										‖78·0	86·5‖		69·2‖		77·8‖		17·2‖	90·3	31st	65·4	17th	24·9
	Straits Settlements,	Penang‡‡	20	29·919		29·864	29·954	16th	29·822	26th	·132	81·3	89·2		74·3		81·8		14·9	91·0	17th	73·0	6 days	18·0
		Singapore‡‡	10	29·953		29·884	30·029	6th	29·877	31st	·152	83·6	87·6		71·6		79·6		16·0	89·9	16th & 20th.	69·0	27th	20·9

NOTE.—When a query is inserted against any reading or in the returns of any

* 1 P.M. observations.

† Wind observation for 28 days.

‡ Total rainfall since 1st July 1902.

‖ Mean of 29 days.

¶ Aneroid uncorrected.

I—*concluded.*

Stations in India, Burma, etc., in October, 1902—concluded.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	S.W.	W.	N.W.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 31st October, 1902.	Normal rainfall for period, 1st May to 31st October.	Variation from normal of period, 1st May to 31st October, 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
18	1		1	5	2	1		3	S 28° E	5·6	6·0	5·7	+5	53	·249	2·3	2	3·30	−1·30	1·46	1·32	+0·14	31·78	38·90	−7·12	1·20	Murree	Punjab and North-West Frontier Province—*contd.*	30
22			1	2		4	1		S 18° W							2·6	1			0·16	0·75	−0·59	7·50	3·77	+3·73	0·15	Poo,		
12	9	1	1	1	1	1		2	N 2° E					58	·237	1·9	3	1·30	+1·70	1·38	0·98	+0·40	34·75	52·27	−17·52	0·74	Simla.†		
12	11	3		2	2			1	N 10° E	9·2		5·1	+80	67	·271	2·1	3	1·20	+1·80	2·02	0·78	+1·24	51·69	57·33	−5·64	1·60	Chakrata	United Provinces.	25
	1		8	5	1	2	9	5	S 59° W					65	·279	1·9	1	1·30	−0·30	1·47	0·93	+0·54	82·64	84·03	−1·39	1·39	Mussooree.		
17		1	1	1		9	2		S 43° W	2·5	2·9	1·7	+71	69	·318	1·8	3	1·50	+1·50	0·44	1·49	−1·05	37·21	45·43	−8·22	0·22	Ranikhet.		
4	1		2	5	1	4	1	13	N 69° W	5·5	5·1			65	·265	2·1 (b)	3			1·14			38·54			0·61	Muktesar.		
14	2	1	2	7		3	1	1	S 45° E	2·8	2·6	2·6	0	85	·331	5·8	10	4·87	+5·13	5·15	4·35	+0·80	143·65	116·18	+27·47	1·27	Darjeeling	Bengal	13
15		1	3	7	2	3			S 49° E	1·3	1·5			79	·439	3·2	13	9·10	+3·90	6·17			74·64			1·15	Shillong.	Assam Hill Tracts	8
6		5	7	5	1	3	3	1	S 73° E	3·9	4·5			73	·446	4·5	6	8·20	−2·20	1·88			381·04			0·58	Cherra Poonjee		
7		8	1	5		8	2		S 36° E	4·9	4·9	4·0	+23	53	·403	2·1	1	0·50	+0·50	0·73	0·69	+0·04	30·14	60·45	−30·31	0·73	Mount Abu.	Central India.	
21			1	4		1	3	1	S 12° W	2·7	2·8	2·9	−3	64	·492	3·1	4	3·30	+0·70	2·52	2·18	+0·34	47·86	73·48	−25·62	1·37	Pachmarhi		
8	5	7	2	6	1	1	1		N 67° E	2·5		2·6	−4	81	·443	6·5	22	14·80	+7·20	17·60	11·06	+6·54	39·79	31·34	+8·45	3·54	Wellington	South India.	
	5	6	4	6	4			6	N 58° E	13·1				88	·390	5·6	21	16·20	+4·80	16·85	12·49	+4·36	35·28	39·55	−4·27	1·61	Kodai Kanal.		
13		3	7	5	1	1	1		S 75° E	3·4	3·2			79	·376	6·5	19	13·70	+5·30	10·49	8·57	+1·92	43·93	35·76	+8·17	2·03	Ootacamund.		
														86	·382	8·2	20			17·84			46·05‡			3·48	Dodabetta.		
																											XIII.—Extra India.		
23						8			S 45° W					90	·867	2·9	20			9·80	7·14	+2·66	16·51	22·23	−5·77	1·64	Trincomalee	Ceylon.	
1	4	3	12	5	3		1	2	N 86° E	5·2		7·3	−29	88	·895	6·3	23			28·95	14·80	+14·15	66·58	47·70	+18·88	4·60	Colombo.		
														68	·273	3·5	1			1·52	0·42	+1·10	1·58	1·43	+0·15	1·39	Meshed	Persia.	
10	3	11	2			3	1	1	N 34° E	1·8‖‖	2·3‖‖			50	·263	4·3	3			0·90	0·10	+0·80	1·26	1·07	+0·19	0·41	Teheran.		
26	1				1	2	1		N 72° W	2·5	3·3			56	·268	2·1	0			0	0·21	−0·21	0·04	0·38	−0·34	0	Ispahan.		
1	9	11	4	3	1			2	N 40° E	4·8	5·7	6·5	−12	64	·566	1·4	2			0·38	0·08	+0·30	0·38	0·08	+0·30	0·17	Bushire.		
	2	3	4	1	1	1	9	9	N 48° W	?	?			76	·812	Not recorded	1			0·15			0·15			0·15	Bahrein.		
	3	2	15	1			1	3	N 68° E	11·4‖‖	13·2‖‖			72	·804	1·8	1			0·28	0·04	+0·24	0·28	0·17	+0·11	0·28	Jask.		
		1		19			1	10	S 45° E	4·0	4·1			69	·806	2·6	1			1·00	0·02	+0·98	1·00	0·42	+0·58	0·98	Muscat.		
23	2			1	2	1	1	1	S 63° W	1·5	2·0			51	·337	2·0	2			0·48	0·04	+0·44	0·48	0·37	+0·11	0·35	Baghdad	Arabia.	
																	1			0·28			0·28			0·28	Bussrah.		
		5	15	7	2				S 82° E	14·1	11·4	12·2	−7	65	·769	6·8	0			0	0·01	−0·01	0	0·51	−0·51	0	Aden.		
		1	4	20	2		2	2	S 47° E	19·5	17·5			80	·974	0·2	0			0	0·07	−0·07	1·35	0·91	+0·44	0	Perim.		
		4	4	5	6	11		1	S 8° E					55	·208	1·8	3			0·45	0·32	+0·13	1·12	1·48	−0·36	0·17	Kabul	Afghanistan.	
26				1	2	2			S 14° W	0·6	0·6			48	·192	0·5	0			0	0·05	−0·05	1·00	3·06	−2·06	0	Kashgar	Central Asia.	
3	4	7	5	2	6		1	3	N 63° E					78	·874	7·9	13			9·16	6·01	+3·15	65·82	43·74	+22·08	2·06	Amini Devi.	Arabian Sea Islands.	
	2	6	2	2	5	8	5	1	S 39° W	8·5	9·0			84	·883	6·3	18			15·13	7·46	+7·67	65·31	41·58	+23·73	3·67	Minicoy.		
1		1	2	15	9	1	1	1	S 30° E	6·9	6·5			85	·821	6·9	8			6·38	2·99	+3·39	27·65	21·35	+6·30	2·17	Zanzibar	Africa.	
14				10	2	3			S 24° E	4·9¶¶	4·7¶¶			84‖‖	·804‖	6·1‖	7			5·35			23·08			1·66	Do. Dunga.		
8	4	14		2				3	N 32° E	2·7						0	16			9·52			43·26			1·54	Penang	Straits Settlements.	
1	2	2	12	7	1	2	2	2	S 79° E							6·5	7			2·20			21·69			0·63	Singapore.		

station, the data for that station are not utilized in calculating the provincial variations.

** Aneroid corrected.

†† Observations of 29 days.

‖‖ Mean of 28 days.

(a) Mean of 23 days.

‡‡ Nine hours' observations.

(b) Mean of 24 days.

§§ Observations of 30 days.

¶¶ Mean of 26 days.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63 Stations in India, Burma, etc., in October, 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb.			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity 45° Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Bay Islands.	Port Blair	61	29·932	29·834	·098	29·881	+·072	29·873	88·3	78·4†	9·9	91·8	75·8	16·0	85·6	85·1	82·0†	+1·8	76·0	80·5	79·8	78·8
	Rangoon	41	·949	·834†	·115	·897†	+·050	·874†	88·1	75·6	12·5	90·7	73·3	17·4	84·2	85·3	80·3	+0·5	74·5	78·6	78·2	77·1
	Diamond Island	41	·961	·850	·111	·904	+·060	·879	86·7	77·5	9·2	89·4	74·0	15·4	84·1	84·1	81·0	+1·0	75·0	79·2	78·0	77·4
	Cocos Island	119									Not	received										
	Akyab	20	·990	·880	·110	·936	+·082	·899	87·3	75·0	12·3	89·9	71·7	18·2	82·2	84·3	80·4	−0·9		78·4	78·2	
Bengal and Orissa.	Chittagong	87	·923	·811	·112	·867	+·080	·902	86·1	71·5	14·6	88·6	66·7	21·9	82·3	82·7	78·0	−1·0	71·2	76·6	75·9	74·6
	Calcutta (Alipore)	21	·997	·881	·116	·934	+·098	·900	88·4	74·0	14·4	93·0	69·6	23·4	84·3	85·8	80·8	+0·8	72·2	76·5	75·7	74·8
	Saugor Island	25	·984	·877	·107	·926	+·096	·895	88·4	77·2	11·2	91·2	70·0	21·2	84·8	85·8	81·7	+1·5	73·9	77·7	77·8	76·5
	False Point	21	·996	·888	·108	·940	+·093	·903	89·5	74·1	15·4	94·5	70·3	24·2	86·3	86·2	80·5	+0·7	73·1	77·2	76·9	75·7
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	27·994	27·899	·095	27·949	+·081	·906	83·2	67·2	16·0	86·1	61·3	24·8	78·3	80·4	74·1	+0·6	63·2	66·8	66·7	65·6
	Darbhanga	166	29·851	29·729	·122	29·786	+·081	·908	85·1	72·4	12·7	89·3	66·9	22·4	81·7	83·7	78·1	−1·2	70·1	75·2	75·3	73·5
	Allahabad	309	712	592	·120	646	+·091	·909	90·8	67·3	23·5	94·5	58·4	36·1	83·9	88·6	77·9	−0·7	65·1	72·3	72·6	70·0
Upper Sub-Himalayas.	Dehra Dun	2,233	27·769	27·682	·087	27·714	+·062	·920	80·1	60·0	20·1	85·4	53·6	31·8	73·8	76·2	68·7	−1·9	56·6	64·0	65·7	62·1
	Roorkee	899	29·091	28·981	·110	29·025	+·061	·897	86·9	61·3	25·6	91·6	54·4	37·2	78·4	83·6	72·9	−1·2	59·9	67·7	67·9	65·2
	Meerut	738	·240	29·133	·107	·180	+·063	·887	89·0	64·0	25·0	91·6	56·5	38·1	78·5	85·9	75·3	−0·3	61·2	67·4	69·9	66·2
	Lahore	702	·269	·173	·096	·214	+·064	·883	92·7	64·6	28·1	99·4	57·7	41·7	83·1	90·9	77·5	+3·0	61·0	70·7	72·9	68·2
	Ludhiana	812	·166	·072	·094	·111	+·069	·895	88·9	66·0	22·9	94·3	59·4	34·9	80·7	86·3	76·2	+1·0	61·0	67·0	68·1	65·4
N.-W. Frn. Prov., Indus Valley and N.-W. Rajputana.	Peshawar	1,110	28·896	28·782	·114	28·832	+·053	·933	86·0	60·6	25·4	94·5	53·0	41·5	78·9	82·5	71·7	+0·8	55·6	65·4	66·8	62·6
	Jacobabad	186	29·773	29·655	·118	29·707	+·041	·850	100·0	67·9	32·1	107·6	60·4	47·2	87·4	96·2	82·3	+3·8	63·5	?	?	?
	Kurrachee	30	972	·876	·096	·925	+·053	·905	93·4	76·4	17·0	101·2	67·2	34·0	88·1	88·5	83·6	+3·9	69·9	77·3‡	79·7	75·5
E. Rajputana, Central India and Gujarat.	Jaipur	1,431	28·585	28·479	·106	28·526	+·068	·907	93·2	66·2	27·0	99·2	58·5	40·7	85·0	89·8	77·8	+1·6	59·8	68·3	68·7	65·7
	Udaipur	1,925	·095	27·992	·102	·044		·915	88·1	63·3	24·8	91·0	54·2	36·8	82·0	85·6	75·1		61·0	70·1	70·7	67·3
	Deesa	466	29·530	29·414	·116	29·466	+·051	·880	97·1	69·8	27·3	100·3	63·6	36·7	88·9	94·9	83·1	+2·4	64·3	72·4	71·3	69·3
	Jamnagar	61	·947	·834	·113	·890		·897	94·5	71·6	22·9	98·5	64·6	33·9	88·3	91·2	82·2		67·7	73·5	73·4	71·5
Deccan.	Belgaum	2,539	27·452	27·348	·104	27·399	+·059	·853	82·5	66·0	16·5	89·2	60·9	28·3	77·1	77·7	72·6	+0·3	65·3	69·8	69·3	68·1
	Sholapur	1,590	28·398	28·263	·135	28·333	+·054	·852	91·7	71·8	19·9	96·7	67·9	28·8	84·5	88·4	80·3	+3·1	64·9	70·6	70·0	68·5
	Akola	930	29·081†	·953§	·128	29·013	+·077	·892§	91·9‖	68·4‡	23·5	96·2	63·1	33·1	85·3†	89·6‡	80·3‖	+1·9	65·2†	72·6†	72·0‡	70·0
	Buldana	2,132	27·880	27·769	·111	27·820	+·065	·879	86·6	68·0	18·6	91·6	62·9	28·7	81·5	83·6	77·4	+0·8	63·0	68·9	68·3	66·7
	Khandwa	1,044	28·966	28·840	·126	28·899	+·073	·894	92·0	68·2	23·8	97·2	62·6	34·6	84·4	89·9	79·0	+2·1	64·8	72·0	71·8	69·5
	Nagpur	1,025	·998	·873	·125	·932	+·108	·910	90·7	69·7	21·0	95·1	66·4	28·7	83·0	87·1	80·1	+1·3	65·8	71·4	70·6	69·3
	Do. (Sanitary Commr.'s Office)	1,013	29·008	·886	·122	·943		·911	91·2	70·0	21·2	95·8	66·4	29·4	84·5	88·0	79·8		66·6	74·3	74·6	71·8
	Hyderabad (Deccan)	1,690	28·313	·194	·119	·252	+·079	·875	83·7	70·4	13·3	94·7	67·2	27·5	82·4	86·1	78·9	+2·0	67·7	72·3	71·7	70·6
West Coast.	Bombay	37	29·950	29·840	·110	29·891	+·049	·867	89·6	78·9	10·7	92·9	74·2	18·7	84·5	86·5	83·4	+2·3	75·2	78·1	79·0	77·4
	Karwar	44	·938	·827	·111	·878	+·046	·854	86·6	73·9	12·7	92·1	71·5	20·6	82·3	84·6	79·6	+1·2	72·3	76·9	77·4	75·5

† Mean of 30 days. ‡ Mean of 29 days. § Mean of 27 days.

II.

63 Stations in India, Burma, etc., in October, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from											Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·867†	·975	·953	·932	+·021	89†	79	78	82	− 4	4·3	5·2	4·8	−1·2	4	2	11	9	19	2	2	7	6	S. 81° E.	S. 1° W.	29	25	147*	150	7·76	1·03	Port Blair	Burma Coast and Bay Islands.
·843	·908	·873	·875	−·013	95	77	72	81	− 3	4·5	5·6	5·1	−0·8		5	15	24	7	6	1	2	2	N. 81° E.	S. 36° E.	58	28	28*	74	4·00	1·42	Rangoon	
·833	·935	·877	·882	+·015	89	80	75	81	− 2	3·7	4·3	4·0	−1·7	3	5	20	7	13	5		1	8	N. 66° E.	S. 56° E.	42	17	212*	173	4·44	1·27	Diamond Island, Cocos Island	
	·925	·887				84	75			3·1	2·2	2·7	−2·1		1	7	14	10	3	3	11	13	N. 54° E.	S. 64° E.	8	8	71*	59	4·91	3·20	Akyab	
·763	·844	·805	·804	−·044	98	76	72	82	− 1	3·4	3·5	3·5	−0·9		6	16	5	7	4	6	4	14	N. 13° E.	N. 11° W.	23	13	73*	66	4·48	2·65	Chittagong	Bengal and Orissa.
·771	·809	·757	·779	−·040	92	69	62	74	− 7	4·4	3·8	4·1	0	2	6	3	6	1	3	14	11	16	N. 76° W.	N. 44° W.	39	11	68	67	2·78	2·05	Calcutta (Alipore).	
·795	·858	·850	·834	−·023	85	72	69	75	− 6	4·9	4·4	4·7	0		11	6	2	2	9	17	6	9	S. 87° W.	N. 8° W.	27	13	168	174	3·87	1·77	Saugor Island.	
·803	·816	·802	·807	−·018	95	65	64	75	− 4	4·6	4·6	4·6	−0·2		6	10	7	5	12	5	10	7	S. 45° W.	N. 50° E.	2	22	124*	145	1·00	0·79	False Point	
·533	·517	·486	·512	−·027	79	53	46	60	− 4	3·9	5·4	4·7	+0·3	3	13	6	1	1	3	6	9	20	N. 42° W.	N. 35° W.	52	24	117*	124	0·57	0·43	Hazaribagh	Gangetic Plain and Chota Nagpur.
·712	·790	·768	·757	0	89	73	66	76	+ 1	2·5	2·6	2·6	0	25	1	2	13	11	2	1	3	4	S. 72° E.	S. 4° W.	27	1	32	52	1·70	1·07	Darbhanga	
·602	·642	·591	·612	−·008	89	55	44	63	− 3	2·6	3·0	2·8	+1·0	11	5	4	5	2	2	5	17	11	N. 66° W.	N. 49° W.	34	18	89*	66	0	0	Allahabad	
·423	·477	·508	·469	+·019	81	57	56	65	+ 3	2·6	2·2	2·4	+1·2	21	2			2	7	12	10	8	S. 68° W.	N. 39° W.	39	21	18	33	1·31	0·90	Dehra Dun	Upper Sub-Himalay s.
·503	·537	·479	·506	+·012	92	55	42	63	+ 5	1·6	1·6	1·6	+0·7	18		4	2	14	5	1		18	S. 87° E.	S. 6° E.	2	6	36	31	0·08	0·03	Roorkee	
·510	·527	·527	·521	+·028	85	54	43	61	+ 4	0·6	1·4	1·0	+0·3	25	2		6	5		5	7	12	N. 70° W.	N. 55° W.	16	35	22*	31	1·17	1·08	Meerut	
·494	·590	·571	·551	+·109	81	52	40	58	+11	0·7	0·8	0·8	+0·1	14	6	3	10	3	6	3	8	9	N. 28° W.	N. 7° W.	8	11	42	39	0·23	0·15	Lahore	
·474	·485	·449	·469	+·005	74	46	36	52	− 1	1·3	1·2	1·3	+0·3	8	2	6	4	20		1	19	2	S. 11° E.	N. 39° W.	11	22	35*	26	0·14	0·06	Ludhiana	
·386	·473	·470	·443	+·080	73	49	44	55	+ 8	1·7	3·5	2·6	+1·1	20	16	9	5	1	1		5	5	N. 8° E.	N. 52° E.	40	33	38*	60	0·54	0·25	Peshawar	N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.
·538	?	?	?	?	78	?	?	?	?	1·4	1·4	1·4	+1·0	32	4	3	4	10	4	2		3	S. 66° E.	S. 27° E.	17	9	34*	54	0	0	Jacobabad	
·656	·795‡	·896	·780	+·134	71	60‡	67	66	+ 3	2·1	1·0	1·6	+0·7	4	1	3	4	4	3	22	20	1	S. 60° W.	S. 72° W.	51	61	201*	235	0	0	Kurrachee	
·439	·491	·440	·457	+·051	68	41	31	46	+ 3	2·2	4·2	3·2	+1·5	3	4	8	4	2	4	9	20	8	N. 80° W.	N. 22° W.	34	37	62	77	0·06	0·03	Jaipur	E. Rajputana, C. India and Gujarat.
·514	·596	·568	·559		87	54	47	63		0·8	2·6	1·7		41	1		3	1	2	6	8		S. 54° W.		16		18*		0·72	0·70	Udaipur	
·537	·577	·453	·522	+·082	73	43	28	48	+ 6	1·0	1·2	1·1	−0·7		2	3	11	12	7	9	14	4	S. 6° W.	N. 82° E.	24	12	124	161	0	0	Deesa	
·631	·634	·588	·617		81	48	41	56		1·6	2·7	2·2			10	7	4	1	1	6	18	13	N. 50° W.		46		244*		0·07	0·05	Jamnagar¶.	
·617	·640	·615	·624	+·035	96	69	67	77	+ 5	6·3	6·7	6·5	+0·9		5	12	20	11	1	4	5	4	N. 79° E.	N. 54° E.	42	13	182	241	9·09	1·62	Belgaum	Deccan.
·534	·578	·503	·538	−·041	69	50	40	53	− 9	5·0	7·6	6·3	+0·4		3	16	9	27	2	2	1	2	S. 79° E.	N. 55° E.	58	22	261*	193	3·11	1·27	Sholapur	
·583†	·634†	·551‡	·591	+·020	84†	53†	41‡	60	0	4·1†	6·1‡	5·1	+1·9	27		8	8	8	2	1	1	4	N. 89° E.	N. 16° E.	25	32	‡ 70*	83	1·50	1·07	Akola	
·516	·551	·503	·523	0	75	52	45	57	− 2	4·3	5·5	4·9	+1·2		8	14	14	12	4	1	1	8	N. 68° E.	N. 24° E.	44	49	108*	125	3·66	2·54	Buldana	
·578	·627	·550	·585	+·045	83	54	41	59	+ 2	2·8	5·2	4·0	+1·6	5	5	7	17	10	8	2	2	6	S. 84° E.	N. 22° E.	35	35	82	71	1·43	0·69	Khandwa	
·587	·626	·546	·586	+·005	81	56	44	60	0	3·1	5·1	4·1	+0·3	18	3	13	13	3	4	5	1	2	N. 78° E.	N. 37° E.	31	49	96	102	1·02	0·37	Nagpur	
·614	·721	·693	·676		84	61	53	66		3·0	5·8	4·4		18		14		13		2		15	N. 36° E.		19		27*		0·76	0·54	Do. (Sanitary Commr.'s Office).	
·648	·674	·605	·642	−·007	87	62	50	66	− 4	4·3	5·6	5·0	+0·7	31		3	14	14					S. 74° E.	S. 80° E.	43	33	95*	96	3·63	1·08	Hyderabad (Deccan).	
·823	·882	·899	·868	+·028	54	74	71	76	− 4	3·9	4·2	4·1	0		2	10	16	3	1		10	20	N. 3° E.	N. 14° E.	32	33	191	226	0·78	0·42	Bombay	
·774	·853	·846	·824	+·009	93	77	71	80	− 3	4·4	4·0	4·2	−0·3	11	3	2		1		1	37	7	N. 39° W.	N. 76° W.	17	63	66	54	6·47	2·42	Karwar	West Coast.

‖ Mean of 28 days. ¶ Wind variable 2. * Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at

Meteorological Province.	Station.	Elevation of barometer above sea-level in feet.	Pressure. Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity 45° Lat.	Temperature of air. Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	29·053	28·903	·130	28·978			88·1	71·5	16·6	96·7	65·5	31·2	81·7	83·7	78·2		69·6	74·2	74·1	72·5
	Salem	940	·049	·924	·125	·993	+·049	29·870	89·1	70·9	18·2	95·2	63·3	31·9	82·0	83·7	77·6	−0·4	70·1	75·5	76·4	74·0
	Chitaldroog	2,405	27·584	27·464	·120	27·526	+·051	·838	85·0	68·3	16·7	92·7	65·0	27·7	79·0	82·6	76·1	+1·0	65·3	69·9‡	69·9	68·4
	Bangalore	3,021	·006	26·895	·111	26·955	+·049	·861	81·6	64·7	16·9	86·9	56·2	30·7	76·3	77·9	72·2	+0·2	63·7	68·9‡	68·4†	67·0
	Hassan	3,091	26·939	·826	·113	·887	+·040	·854	81·2	64·0	17·2	87·0	57·5	29·5	76·4	78·7	72·0	+0·6	63·0	68·5	68·0	66·5
	Mysore	2,518	27·488	27·365	·123	27·427	+·041	·849	84·7	67·1	17·6	90·1	60·6	29·5	78·2	81·2	75·1	+0·4	65·5	69·5	69·2	68·1
	Madras	22	29·965	29·857	·116	29·914	+·076	·866	87·9	73·9	14·0	93·0	68·6	24·4	84·2	84·4	80·2	−0·9		77·3	77·2	76·5
	Bellary	1,475	28·517	28·381	·136	28·451	+·055	·862	90·8	71·0	19·8	97·8	67·2	30·6	82·6	85·9	79·1	+0·3	67·4	71·7	71·7	70·3
	Waltair	226	29·792	29·680	·112	29·736		·903	88·3	76·5	11·8	93·0	70·1	22·9	85·5	85·1	81·6		69·0	75·2	74·9	73·0
Hill Station, Baluchistan.	Quetta	5,502	24·788	24·700	·088	24·735	+·052		74·5	42·9	31·6	81·3	36·0	45·8	67·6	70·0	57·6	+2·0	39·8	51·9	51·7	47·8
Hill Stations, Northern India.	Leh	11,503	19·817	19·710	·107	19·773	+·041		55·0	31·5	23·5	65·8	25·5	40·3	46·0	52·1	43·6	+1·0	27·5	36·1	38·8	34·1
	Srinagar	5,204	25·059	24·951	·108	24·996	+·058		69·7	42·0	27·7	78·8	34·0	44·8	57·0	67·1	55·2	+1·8	39·9	53·6	60·8	51·4
	Kailang	10,087	21·050	20·962	·088	21·014	?		62·9	32·1†	30·8	69·8	25·5	44·3	50·4	51·1	43·3†	+0·9	29·4	40·0	39·5	36·3
	Simla (Ridge)	7,224	23·258	23·201	·057	23·221	+·061		60·1	49·0	11·1	64·4	42·8	21·6	55·6	56·3	53·4	−2·8	43·9	48·0	49·0	47·0
	Chakrata	7,022	·413	·356	·057	·376	+·049		63·1	48·7	14·4	67·2	42·4	24·8	59·3	57·5	54·3	−2·5		51·3	51·5	
	Ranikhet	6,069	24·241	24·163	·078	24·188	+·069		66·6	52·6	14·0	70·1	46·0	24·1	62·6	62·4	58·4	−2·3	48·2	53·5	54·2	52·0
	Muktesar	7,600	22·982	22·914	·068	22·948			63·8	46·7	17·1	67·6	39·4	28·2	58·4	58·0	53·8		42·6	50·0	51·2	47·9
	Katmandu	4,388	25·766	25·721	·045	25·743	?		75·4	53·8	21·6	79·1	45·9	33·2	67·7	69·1	63·1	−3·8	52·7	61·2	61·7	58·5
	Darjeeling	7,376	23·127	23·068	·059	23·097	+·045		58·3	47·5	10·8	66·5	43·5	23·0	54·7	56·6	52·4	−2·0	46·2	51·5	53·1	50·3
Hill Stations, Central India.	Mount Abu	3,945	26·177	26·100	·077	26·132	+·038		77·5	64·0	13·5	82·2	60·4	21·8	74·5	75·1	70·2	−0·4	56·1	61·1	61·8	59·7
	Pachmarhi	3,528	·585	·491	·094	·534	+·071		80·8	60·2	20·6	84·6	55·7	28·9	75·2	76·6	69·5	+1·8	57·5	63·8	64·0	61·8
	Chikalda	3,642	·450	·349	·101	·395	+·054		79·0	64·3	14·7	83·2	58·2	25·0	74·7	77·1	71·1	+1·1	59·2	65·6	66·8	63·9
Hill Stations, S. India.	Kodaikanal	7,688	22·883	22·809	·074	22·844			62·4	51·1	11·3	67·5	45·7	21·8	59·2	57·1	55·3		49·4	55·9	55·4	53·4
	Ootacamund		23·113	23·037	·076	23·075			4·0	51·5	12·5	68·7	46·8	21·9	61·0	60·0	56·8		50·4	55·5	55·9	53·9
Extra India.	Aden (a)	94	29·866	29·751	·115	29·809	−·017	·833	89·8	78·3	11·5	97·2	74·9	22·3	86·9	87·0	83·5	+0·6	72·6	75·6	76·1	74·8
	Perim	201	·763	·649	·114	·706	+·032	·839	91·8	80·7	11·1	95·9	79·2	16·7	88·0	88·0	85·3	+0·4	76·5	81·5	81·3	79·8
	Minicoy	7	·890	·898	·092	·942		·874	85·0			89·0			82·3	81·9				77·8	77·6	
	Zanzibar	73	30·032	·918	·114	·975	+·021	·975	83·0	75·4	7·6	86·0	71·9	14·1	79·8	82·2	79·0	−0·1	72·5	75·5	75·6	74·5
	Port Victoria (Seychelles)	15	29·996	·902	·094	·949	−·006	·888	83·8	73·9	9·9	85·6	69·6	16·0	81·8	82·9	78·7	−0·4	72·9	76·0	76·0	75·0
	Mauritius (Pamplemousses)	181				·926	−·032	30·055				85·8	61·0	24·8			73·7	+1·3				

† Mean of 30 days. ‡ Mean of 29 days. § Mean of 28 days. (a) Observation of 29 days.

II—*concluded.*

63 Stations in India, Burma, etc., in October, 1902—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind Direction.										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
														Number of winds from																	
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·702	·748	·715	·725		91	69	63	75		5·3	8·0	6·7		12	4	2	14	11	7	5	5	2	S. 49° E.		27		51*		8·92	1·07	Periyakulam	South India.
·729	·804	·824	·786	+·035	96	73	72	80	+ 4	6·3	7·5	6·9	+1·1	12	1		36	1	1	3	7	1	S. 86° E.	S. 50° W	43	29	58*	60	9·08	3·54	Salem	
·589	·628‡	·575	·597	+·031	85	65‡	53	68	+ 3	5·4	5·7	5·6	-0·4	2	2	9	28	12	1	3	3	2	S. 87° E.	N. 28° E.	58	15	134*	143	14·81	3·59	Chitaldroog	
·583	·619‡	·588†	·597	+·005	95	69‡	64†	76	+ 1	5·3	5·5	5·4	-0·4	1	1	19	26	7	1	1	3	3	N. 76° E.	N. 8° W.	64	8	160*	105	8·66	2·52	Bangalore	
·570	·607	·562	·580	+·001	95	67	58	73	- 2	7·0	7·1	7·1	0		2	21	24	9	1		2	3	N. 74° E.	N. 42° E.	69	24	58*	63	12·10	5·35	Hassan	
·613	·617	·566	·599	—·003	92	64	55	70	- 1	8·2	7·5	7·9	+1·3		2	11	20	18	2	1	4	4	S. 85° E.	N. 42° E.	53	13	160*	185	9·63	4·39	Mysore	
	·846	·841	·864	+·031		74	72	84	+ 4	6·4	5·4	5·9	-0·1		7	17	15	13	4	2	1	3	N. 78° E.	N. 55° E.	52	17	110	118	20·67	9·16	Madras	
·631	·641	·603	·625	+·004	83	59	51	64	+ 1	5·9	6·7	6·3	-0·2	1	5	8	18	16	4	2	2	6	S. 86° E.	N. 42° E.	43	14	95*	104	5·38	1·66	Bellary	
·610	·737	·735	·694		66	61	61	63		4·0	4·3	4·2				19	13	15	8	6	1		S. 74° E.		55		99		9·89	3·93	Waltair	
·218	·225	·197	·213	+·027	78	36	29	48	+ 7	1·6	2·3	2·0	+1·4	29	8		3	2	3	3	8	6	N. 59° W	N. 59° W.	18	44	33*	54	0·98	0·54	Quetta	Hill Station, Baluchistan.
·120	·132	·126	·126	+·026	67	43	33	48	+ 8	3·2	5·5	4·4	+0·6			2	2	2	9	24	21	2	S. 54° W.	S. 55° W.	68	42	54	44	0·21	0·09	Leh	
·227	·378	·474	·360	+·045	84	80	70	78	0	2·4	4·2	3·3	+0·5	29	4	4	2	4	4	2	5	8	N. 46° W.	N. 18° W.	10	12	47*	75	0·87	0·41	Srinagar	Hill Stations, Northern India.
·144†	·160	·144	·149	+·015	80†	44	39	54	+ 4	3·2	5·9	4·6	+1·2		1			5	14	25	15	2	S. 43° W.	S. 37° W.	72	64	34	37	0·24	0·19	Kailang	
·236	·257	·275	·256	+·010	68	58	61	62	+10	2·9	3·9	3·4	+1·9	21	17	3	1		8	1		3	N. 1° E.	N. 32° W.	23	15		108	1·38	0·74	Simla(Ridge)	
	·296	·323				59	67			2·7	4·5	3·6	+1·9	5	5	2		21	27	2			S. 22° E.	S. 64° W.	64	32	217	129	2·02	1·60	Chakrata	
·294	·320	·338	·317	— ·011	74	57	60	64	+ 3	2·5	2·7	2·6	+0·9	9	2	2	1	1	2	19	21	5	S. 75° W.	S. 55° W.	58	51	72*	49	0·44	0·22	Ranikhet	
·234	·276	·309	·273		73	57	64	65		2·5	4·0	3·3		5	2	1	1	11	1	10	3	28	N. 72° W.		34		122*		1·14	0·61	Muktesar	
·391	·473	·474	·446	—·028	93	69	66	76	+ 3	4·8	5·6	5·2	+1·3	5	1	7	12	3		10	16	8	N. 76° W.	W	16	38	12	16	0·82	0·17	Katmandu	
·304	·350	·372	·342	—·028	92	82	81	85	+ 2	5·7‡	6·5§	6·1	+0·3	11	1	3	2	8	5	18	10	4	S. 42° W.	S. 78° W.	37	21	61*	85	5·15	1·27	Darjeeling	
·363	·376	·401	·380	+·041	61	45	46	51	+ 6	1·4	3·4	2·4	+0·5	2	6	6	3	13	7	16	9		S. 13° W.	N. 40° W.	29	9	116*	109	0·73	0·73	Mount Abu	Hill Stations, Central India.
·446	·461	·452	·453	+·014	85	54	51	63	+ 2	3·6	4·9	4·3	+1·1	27	2	3	3	5	2	3	10	7	N. 81° W.	N. 25° E.	14	32	65*	75	2·52	1·37	Pachmarhi	
·448	·527	·542	·505	+·039	74	62	59	65	+ 3	3·7	6·1	4·9	+1·2	49	2	4		4		1		2	N. 52° E.	N. 2° E.	27	40	168*	139	5·40	2·46	Chikalda	
·337	·417	·424	·392		89	53	91	89		6·2	8·3	7·3			6	11	6	7	6	2	1	14	N. 30° E.		21		317		16·85	1·61	Kodaikanal¶	Hill Stations, S. India.
·357	·387	·409	·384		93	72	79	81		6·1	7·9	7·0		26	1	15	8	5	2	1	2	2	N. 69° E.		31		76*		10·49	2·03	Ootacamund	
·728	·710	·762	·743	+·023	75‡	58	59	64	0	7·6	7·6	7·6	+5·9‖			10	13	17	8	7	1	2	S. 56° E.	S. 80° E.	52	56	294*	316	0	0	Aden	Extra India.
·859	·999	·992	·950	?	82	75	74	77	?	0·1	0·2	0·2	-1·0			5	4	46	1		3	3	S. 51° E.	S. 62° E.	71	84	418*	444	0	0	Perim	
	·892	·589				81	82			5·9	7·2	6·6			6	11	4	6	8	11	12	4	S. 62° W.		11		216*		15·13	3·67	Minicoy	
·763	·830	·800	·798	+·027	87	82	73	81	+ 3	7·4	5·2	6·3	+1·7		2	3	3	20	26	4	2	2	S. 19° E.	S. 3° E.	64	53	156*	120	6·38	2·17	Zanzibar	
·800	·826	·809	·812	+·032	95	75	72	81	+ 3	6·6	6·2	6·4	+0·2	9	2		2	22	13	3	5	6	S. 14° E.	S. 44° E.	40	59	176	183	8·60	2·80	Port Victoria (Seychelles).	
			·592	+·030				71	+ 1																		257	266	1·94	0·81	Mauritius (Pamplemouses)	

‖ Mean of 28½ days.

¶ Wind variable 9.

* Corrected.

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LITHO. BY J.N. MUNDLE.

Explanation.

The lines of the above Chart represent isobars or lines of equal barometric pressure, and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of ·05 inch. The isobars in the Bay of Bengal are filled in by means of the shore observations, and by comparison with the ordinary or normal distribution of pressure as given in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant Meteorological Reporter to the Government of India, and published by the Meteorological Department. Hence they have not the same validity as the isobars in the land area of India itself, but it is probable they deviate very little from the actual.

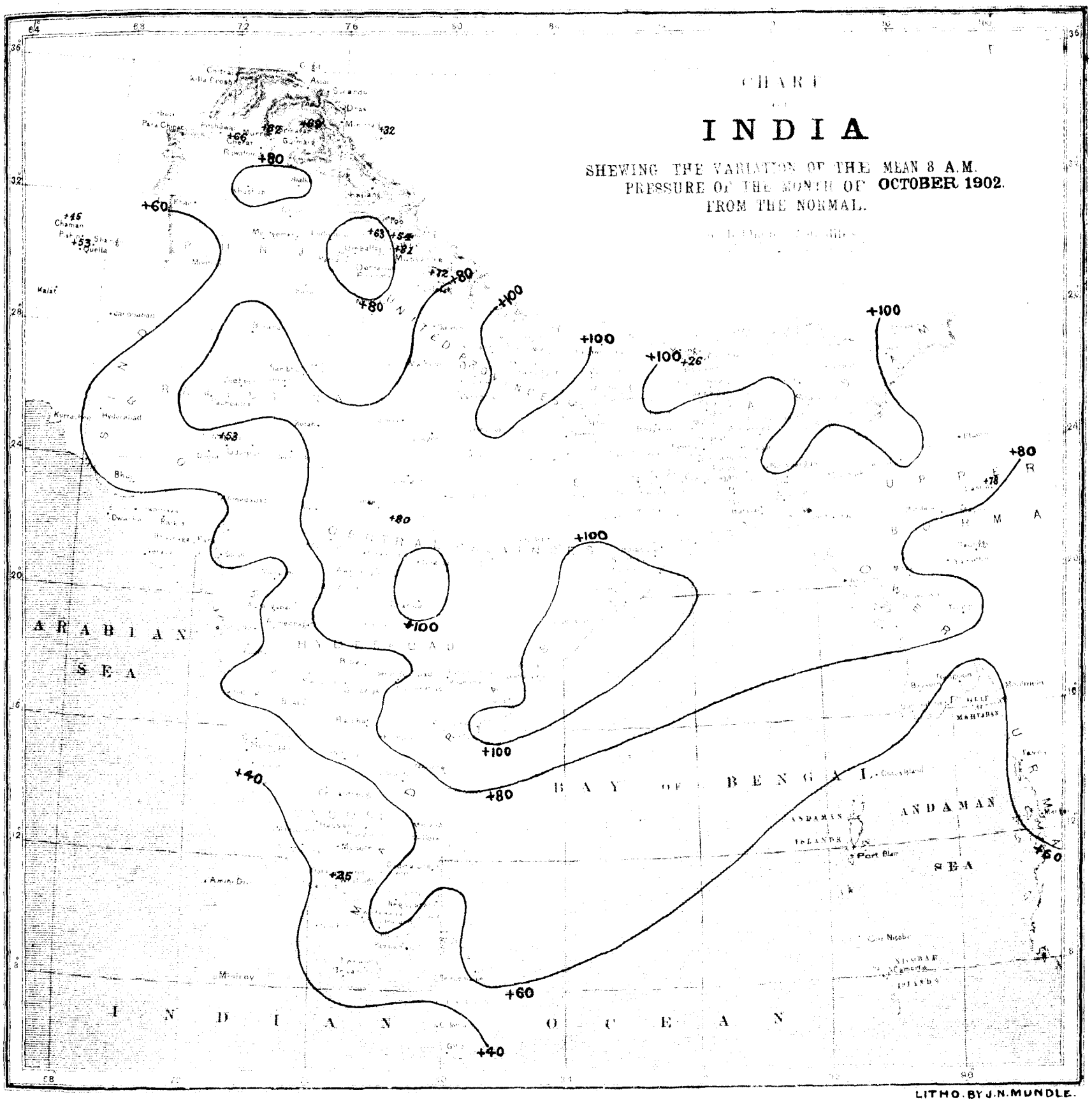
The mean 8 a.m. wind directions of the month are shewn by means of arrows flying with the wind, and are calculated by means of Lambert's formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0 to 2 miles per hour	...	one feather added to the wind arrow
,, ,,	2 to 5 ,, ,, ,,	...	two feathers ,, ,, ,, ,,
,, ,,	5 to 10 ,, ,, ,,	...	three ,, ,, ,, ,, ,,
,, ,,	10 to 20 ,, ,, ,,	...	four ,, ,, ,, ,, ,,
	over 20 ,, ,, ,,	...	five ,, ,, ,, ,, ,,

CHART

INDIA

SHEWING THE VARIATION OF THE MEAN 8 A.M.
PRESSURE OF THE MONTH OF **OCTOBER 1902.**
FROM THE NORMAL.



LITHO. BY J.N. MUNDLE.

Explanation

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other, one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

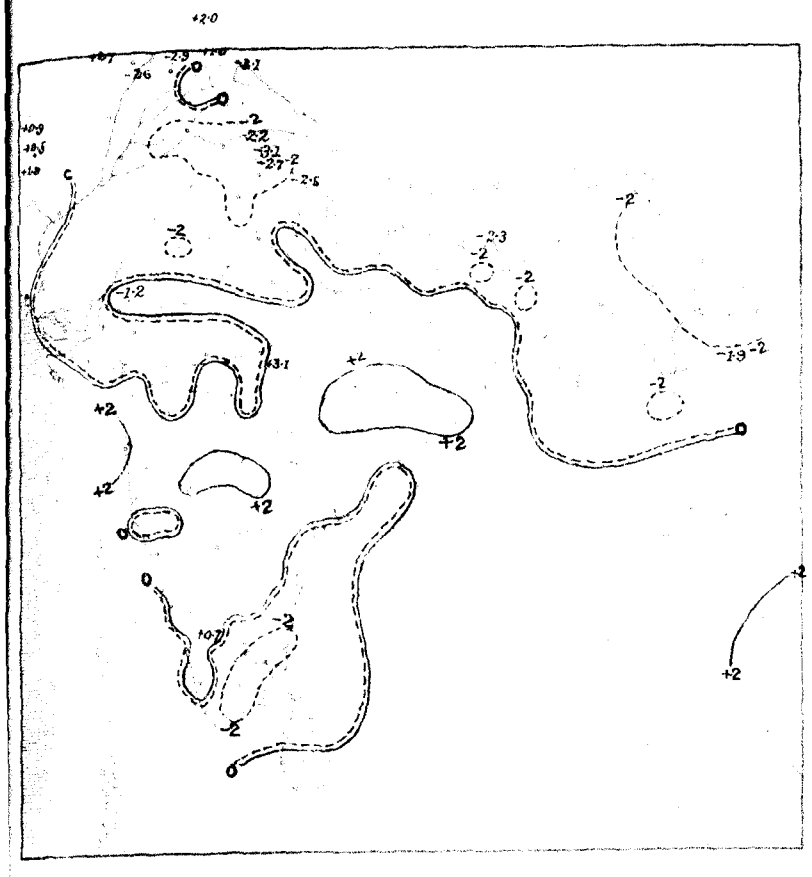
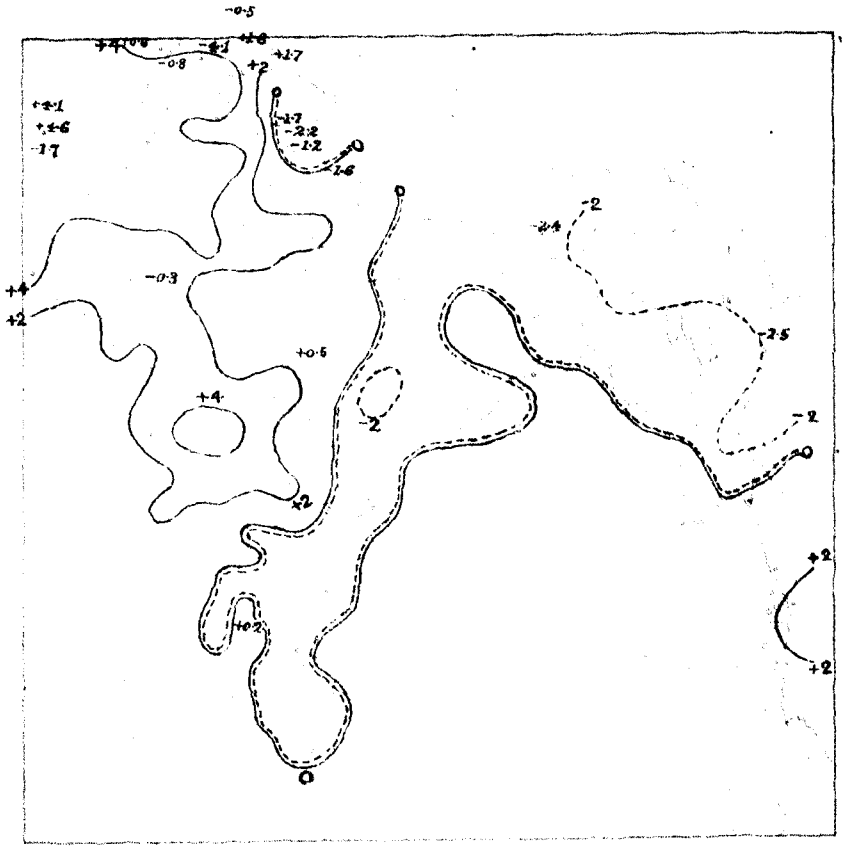


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous lines indicate that the mean maximum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

Continuous lines indicate that the mean minimum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

CHART SHEWING THE VARIATION OF THE MEAN DAILY TEMPERATURE OF THE MONTH FROM THE NORMAL.

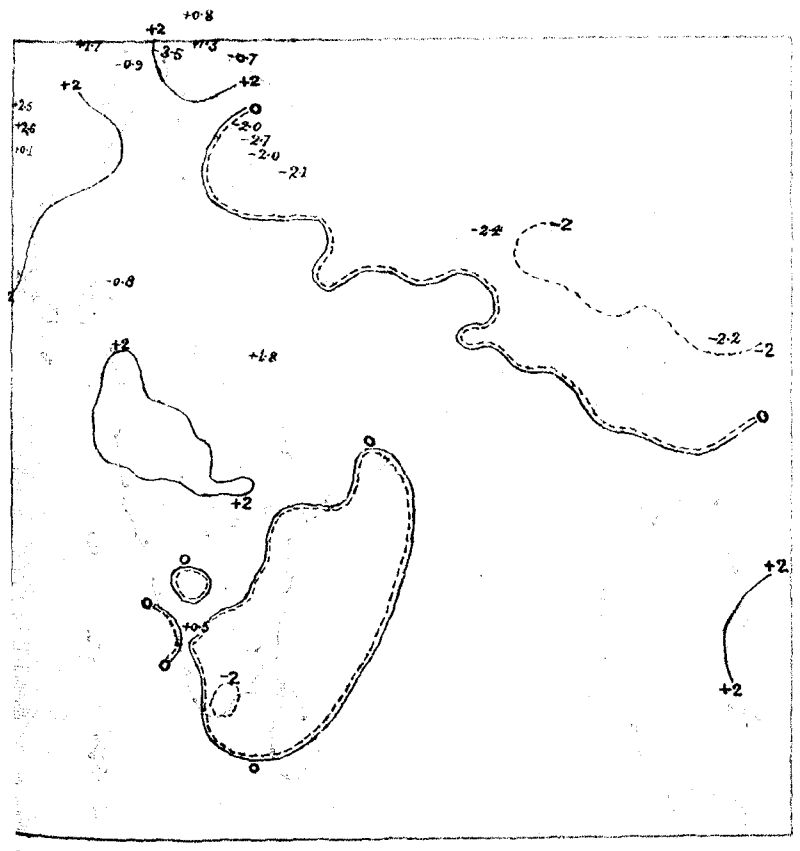
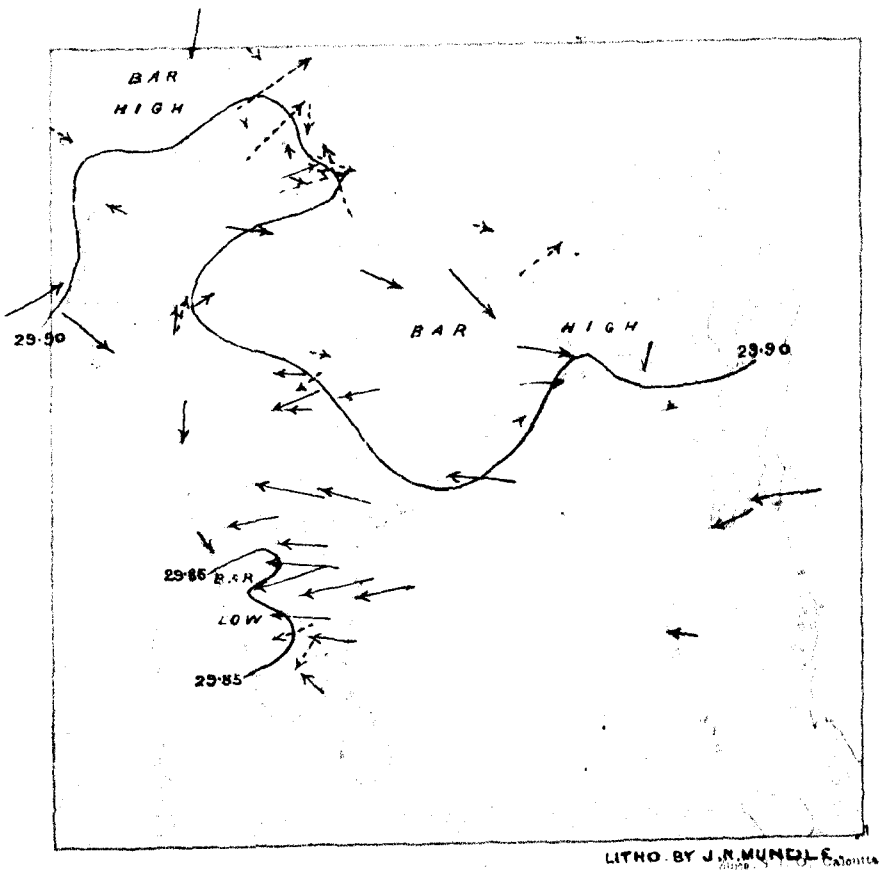


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF OCTOBER 1902.



LITHO. BY J.N.MUNDLE, Calcutta

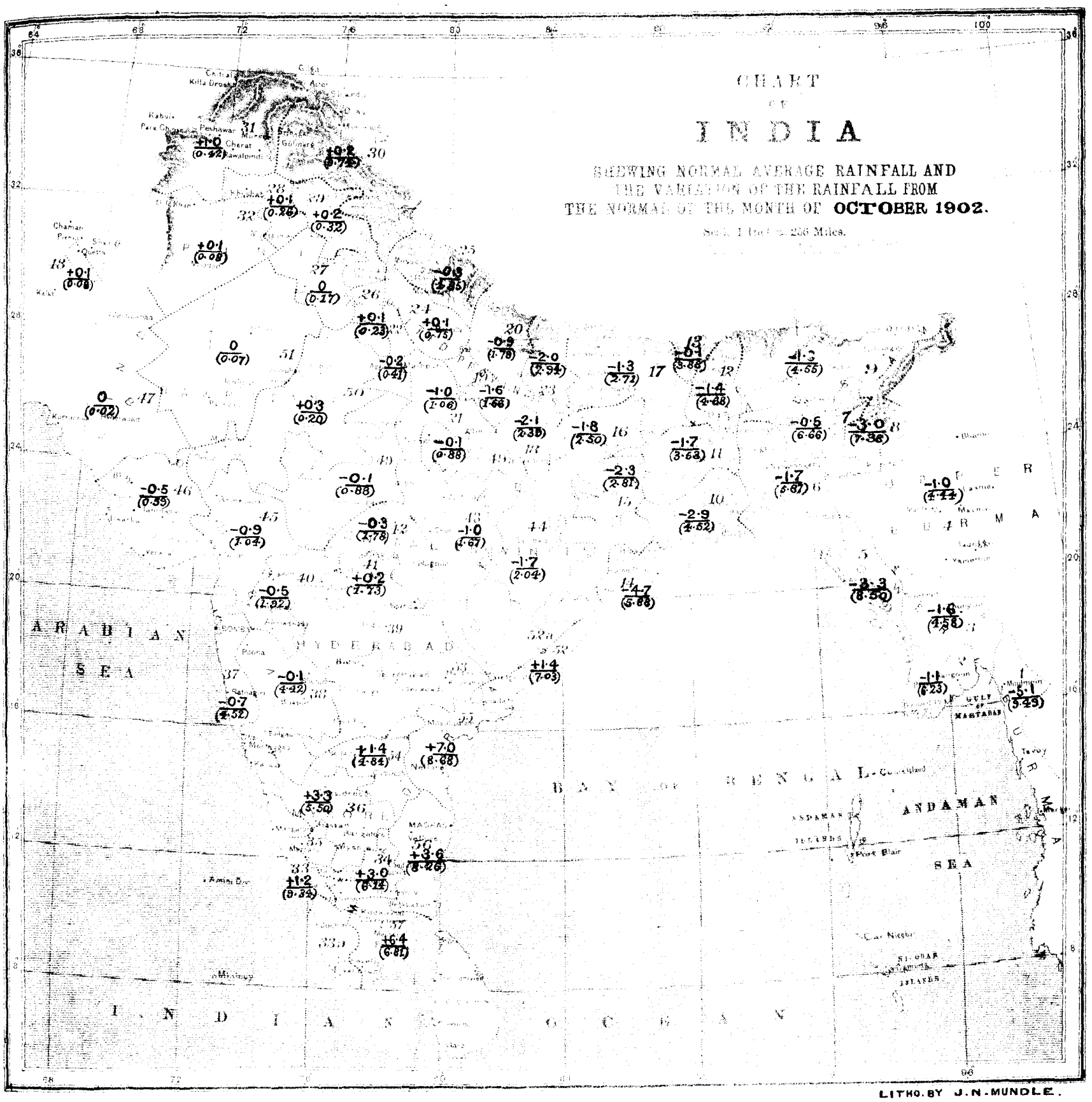
Explanation.

Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

The Chart is prepared in the same manner as the Monthly Charts which previously to 1880 appeared in the Annual Reports, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{1}{8}$th of an inch being equal to 100 per cent.

Explanation.

The Chart shows the distribution of the rainfall of the month by means of [illegible] lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observations [illegible] at the Hill Stations over 3,500 feet in elevation [illegible] in number [illegible]. The double line or line of no rainfall separates [illegible] the rainfall exceeded a tenth of an inch from those where it was actually or practically *nil* (*i.e.* less than a tenth of an inch). [illegible] the area of no rainfall.



Explanation

The Chart gives the variations of the rainfall of the month [illegible] over the whole of India and Burma with the exception of Upper Burma, for which [illegible] for a sufficient number of years to furnish [illegible]. The country is divided into 57 [illegible] meteorological conditions are fairly uniform [illegible] similar in character and the [illegible] the month have been calculated, and the numbers given in the centre of each division (usually with [illegible]) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which [illegible] attached. The normal average rainfall is also given below in smaller figures enclosed within brackets so that the percentage variation can be at once estimated. The name of the district can be at once ascertained by referring in the following [illegible] the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim
2. Lower Burma Deltaic
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. United Provinces, East
19. [illegible]
20. [illegible]
21. United Provinces, Central
22. [illegible] do. West
23. [illegible] do. East Submontane
24. [illegible] do. West do.
25. [illegible] do. Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
33a. Travancore
34. Madras, South Central
35. Coorg
36. Mysore
37. Konkan
38. Bombay Deccan
39. Bombay Deccan, North
40. Khandesh
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
49a. Do. do.
50. Rajputana East, Central India West
51. West Rajputana
52. Madras, East Coast, North
52(a). Do. do. do. (a)
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, NOVEMBER, 1902.

INTRODUCTION.

THIS review of the weather in India during the month of November 1902 is based on observations taken daily at 8 A.M. at 229 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 63 stations. In the rainfall summary the rainfall data of the meteorological observatories and the rainfall statements of the month published by the Provincial Governments that had been received up to the date of the publication of the review are utilized. A summary of the weather in the Bay of Bengal and the Arabian Sea, derived from information extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given.

Summary of the chief features of the weather in India during the month of November, 1902.

During November the weather is almost invariably fine over northern and central India with clear skies and light winds, but is often disturbed in the Bay area. The month is practically rainless over India to the north of Lat. 21° N. except in Assam and Bengal, which receive rain from the cyclonic storms over the Bay. These storms usually originate over the south of the Bay and travel westward or north-westward to the Madras coast. The Peninsula to the south of Lat. 15° N. receives moderate to heavy rain due to the retreating south-west monsoon current in the Bay. The rainfall is usually heaviest in the Coromandel coast districts south of Madras and in Mysore, the Nilgiris, Palnis and other hills of southern India.

The following gives a summary of the more important changes of the meteorolcgical conditions and the chief features of the weather during November 1902.

At the commencement of the month light to moderate rain was falling over a considerable part of the Peninsula and of the central districts of India, and as a result the mean temperature was lower than usual over the inland parts of the Peninsula and the central districts of northern India, while it was high over north-west and north-east India. The following comparative data show the general distribution of temperature on the 1st:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 1st November.	Mean minimum temperature, 1st November.	Mean daily temperature 1st November.
	°	°	°
Chota Nagpur	—1·2	+3·6	+1·2
United Provinces of Agra and Oudh .	—4·8	+2·6	—1·1
North-West Frontier Province and Punjab.	—2·6	+4·9	+1·2
Central Provinces	—7·4	+5·4	—1·0
Berar	—10·8	+5·7	—2·6
Madras Deccan	—6·4	+2·5	—2·0
South India	—1·0	—0·4	—0·7

The rainfall gradually diminished during the next three or four days and, as the rainfall took off, the temperature rose so that the variations for the 24 hours ending at 8 A.M. on the 6th exhibited an excess in all parts of the country except the north-east. This is shown below :—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 6th November.	Mean minimum temperature, 6th November.	Mean daily temperature, 6th November.
	°	°	°
Burma	+1·1	+1·1	+1·1
Assam	—1·4	—2·0	—1·7
Bengal	+1·1	—1·5	—0·2
Orissa	+2·6	+2·9	+2·8
Bihar	—0·6	—2·3	—1·5
Chota Nagpur	+0·8	—1·2	—0·2
United Provinces of Agra and Oudh	+1·1	—2·2	—0 6
North-West Frontier Province and Punjab.	+1·4	+1·3	+1·4
Sind	+4·8	+0·7	+2·8
Rajputana	+1·9	—0·1	+0·9
Gujarat	+2·6	+4·2	+3·4
Central India	—0·1	+1·2	+0·6
Central Provinces	—0·1	+1·5	+0·7
Berar	+1·5	+8·1	+4·8
West Coast	+0·3	+2·3	+1·3
Bombay Deccan	—0·1	+5·8	+2·9
Mysore	+3·4	+3·1	+3·3
Madras Coast	+2·6	+3·7	+3·2
Madras Deccan	+2·1	+3·3	+2·7
South India	+0·9	+2·0	+1·5

The hottest area during these five days extended across the head of the Peninsula where the minimum or night temperatures were in considerable to large excess of the normal. The following table gives comparative data from the 2nd to the 6th for those stations at which the minimum temperatures were 10° or more above the normal :—

Date.	Station.	Minimum temperature.		
		Actual, of date.	Normal, of date.	Variation of actual from normal, of date.
		°	°	°
2nd November	Akola	73·8	61·0	+12·8
	Khandwa	72·1	60·1	+12·0
	Malegaon	72·0	60·4	+11·6
	Ahmednagar	71·4	60·6	+10·8
2nd November	Nagpur	74·1	63·6	+10·5
	Nowgong	67·5	57·0	+10·5
	Indore	67·6	57·2	+10·4
	Sutna	68·6	58·4	+10·2
	Poona	72·4	62·4	+10·0
3rd "	Surat	78·1	65·6	+12 5
	Jubbulpore	69·1	57·0	+12·1
	Akola	72·8	60·9	+11·9
	Malegaon	72·0	60·2	+11·8
	Khandwa	71·6	59·8	+11·8
	Bhavnagar Para	77·8	66·4	+11·4
	Chanda	74·5	63·4	+11·1
	Hoshangabad	71·2	60·5	+10·7
4th "	Akola	73·3	60·8	+12·5
	Rajkot	73·7	62·4	+11·3
	Khandwa	70·1	59·5	+10·6
	Surat	75·5	65·4	+10·1
	Veraval	79·3	69·3	+10·0
5th "	Surat	77·1	65·3	+11·8
	Akola	71·8	60·6	+11·2
	Veraval	79·3	69·2	+10·1
6th "	Akola	70·8	60·5	+10·3

The low temperature area noticed over north-east India on the 6th extended southward and south-westward in a very remarkable manner as there was no rain to account for the extension. It lay over Assam, Bengal and the United Provinces on the 6th; over lower Bengal, Chota Nagpur and the east of the Central Provinces on the 7th; over lower Bengal, Orissa and the east and centre of the Central Provinces on the 8th; over Orissa and the east and south of the Central Provinces on the 9th; over the south of the Central Provinces and the Deccan on the 10th and over the Deccan and south India from the 11th to the 14th, when it commenced to disappear. The progress of this cool wave is shown by the following table which gives for each day, from the 6th to the 14th, the

stations within the area of the wave at which the largest temperature variations were recorded :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
6th November	Purnea	−1·9
	Darbhanga	−1·5
7th „	Chaibassa	−2·9
	Barisal	−2·8
8th „	Sambalpur	−4·5
	Chittagong	−4·2
9th „	Akola	−5·6
	Sambalpur	−5·3
10th „	Ahmednagar	−6·5
	Poona	−6·4
11th „	Poona	−6·0
	Ahmednagar	−5·8
	Cuddapah	−5·7
12th „	Malegaon	−6·8
	Belgaum	−5·8
13th „	Poona	−5·8
	Belgaum	−5·4
14th „	Akola	−3·7
	Malegaon	−3·6

During this period temperature had been generally high over north-west India and Baluchistan, as is shown by the following comparative data :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of								
	6th November.	7th November.	8th November.	9th November.	10th November.	11th November.	12th November.	13th November.	14th November.
	°	°	°	°	°	°	°	°	°
Baluchistan	+1·5	+2·8	+5·5	+7·2	+7·4	+7·4	+2·9	−6·3	−7·5
Sind	+2·8	+3·3	+2·1	+1·5	+3·2	+4·1	+6·7	+4·8	+0·7
Gujarat	+3·4	+2·0	+2·7	+2·0	+0·1	−0·2	+0·2	−0·9	−1·3
Rajputana	+0·9	+1·4	+2·1	+1·2	+2·1	+2·3	+2·4	+1·9	+1·7
North-West Frontier Province and Punjab.	+1·4	+1·0	+1·5	+1·8	+3·1	+3·5	+4·1	+2·9	+1·4

It will be observed that a fall of temperature occurred about the 12th or 13th in the extreme north-west, a change which resulted from a fall of snow and rain over Kashmir and the north Punjab on the 11th, 12th and 13th, caused by a cold weather storm which advanced into north-west India from the Persian area. The following shows the precipitation received at this time :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Jummoo	Kishtwar	11th November	2·44
	Ramban	„ „	1·05
Kashmir	Sonemarg	12th „	2·50
Jummoo	Pader	„ „	1·85
Kashmir	Baramula	„ „	1·23
Kohat	Fort Lockhart	13th „	3·00
Kashmir	Sonemarg	„ „	1·46
Jummoo	Kishtwar	„ „	1·45
	Punch	„ „	1·09

The mean temperature was low over Burma at this period, as is shown by the following comparative data from the 11th to the 14th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	11th November.	12th November.	13th November.	14th November.
	°	°	°	°
Burma	−0·9	−1·5	−2·3	−2·4

On the 15th the low temperature area over Burma was extending westward, while the fall of temperature which had commenced in the extreme north-west on the 12th or 13th had spread over a large part of north-west India, so that at this time temperature was below the normal over a large part of the country. The following gives comparative data for all divisions for the 15th and 16th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	15th November.	16th November.
	°	°
Burma	−0·9	−0·5
Assam	−2	−1·9
Bengal	−1·4	−1·1
Orissa	−0·5	−1·1

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	15th November.	16th November.
	°	°
Bihar	+0·5	+1·3
Chota Nagpur	+1·0	+1·3
United Provinces	+2·2	−1·1
North-West Frontier Province and Punjab	−1·1	−0·5
Sind	+0·7	+2·1
Rajputana	−0·4	−1·6
Gujarat	−0·8	+0·2
Central India	+1·1	−0·9
Central Provinces	−1·2	−1·5
Berar	−1·9	−0·8
West Coast	+0·1	+1·0
Bombay Deccan	−1·0	−2·4
Mysore	+2·4	−0·6
Madras Coast	+0·5	+0·4
Madras Deccan	+0·2	−2·2
South India	+1·3	−0·9

During this period, from the 12th to the 16th, the weather was disturbed over the south-west of the Bay. The winds in that area shifted to south-west and south-east and there were indications of a cyclonic storm off the Madras and Ceylon coasts. These conditions eventually disappeared without developing into a storm, but a good deal of rain was received over south India and Ceylon. The following were the heaviest falls reported:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
NELLORE	Iskapalle	13th November	3·95
	Nellore	14th ,,	3·32
TRAVANCORE	Neduvengad	,, ,,	3·24
	Peermade	,, ,,	3·08
	Meenachil	15th ,,	5·48
	Padmanabhapuram	,, ,,	5·37
	Velavencode	,, ,,	5·25
COIMBATORE	Gopichettipalayam	,, ,,	4·58
TINNEVELLY	Sattur	,, ,,	4·21
COIMBATORE	Gopichettipalayam	,, ,,	3·75
MALABAR	Nilambur	,, ,,	3·67
TRAVANCORE	Eraniel	,, ,,	3·26
TINNEVELLY	Palamcottah	,, ,,	3·17

Between the 16th and 19th another cold weather storm passed from the Persian area into north-west India. The storm had become exceedingly slight by the time it had reached the Indian frontier and occasioned very little rain or snow in the mountain regions around north-west India. There was, however, a rapid change of temperature in the extreme north-west. The following gives variation data for Chaman, Quetta and Peshawar for these four days:—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	16th November.	17th November.	18th November.	19th November.
	°	°	°	°
Chaman	+1·5	+9·0	−0·1	−0·1
Quetta	+2·4	+8·8	+5·5	+0·5
Peshawar	−0·2	+2·8	−5·4	−0·1

Rain fell fairly steadily over the south of the Peninsula from the 18th to the 23rd, and though not heavy kept the temperature low over that area. The following gives data:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	18th November.	19th November.	20th November.	21st November.	22nd November.	23rd November.
	°	°	°	°	°	°
South India	−0·6	−0·3	−0·5	−1·5	−1·7	−1·8

The weather was disturbed and rainy in Persia from the 20th to the 22nd and on the 23rd the depression, which had occasioned this disturbance, appeared on the north-west frontier of India. It gave light rain and snow to Kashmir, and rain to Murree, Rawalpindi, Cherat and Peshawar. This precipitation was followed by a rapid fall of temperature in the extreme north-west. The following gives comparative data from the 20th to the 25th for certain representative stations in the north-west:—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF					
	20th November.	21st November.	22nd November.	23rd November.	24th November.	25th November.
	°	°	°	°	°	°
Chaman	+0·5	+3·8	+5·6	+5·9	+0·7	+2·5
Quetta	+2·8	+6·9	+5·7	+6·0	+3·5	+3·3
Dera Ismail Khan	+1·9	+2·0	+4·2	+7·2	−0·8	+3·1
Peshawar	+1·4	+2·0	+2·2	+9·3	−3·1	+1·2
Cherat	−2·9	−2·5	−0·1	+1·8	−5·9	−4·0
Murree	−1·4	−4·6	−0·1	+3·1	−8·4	−1·3
Rawalpindi	+1·9	+1·8	+0·6	+4·6	−1·1	−0·3

At the time that the above depression was entering north-west India a fresh disturbance was appearing in Persia. This storm appeared on the north-west frontier of India on the 28th, but its effect on the weather was very slight, and though it gave light rain to Afghanistan and Baluchistan, it occasioned no rain over India or snow over Kashmir. During the last week of the month pressure was steadily higher than usual over northern India, while it was generally normal or lower than usual over the south of the Peninsula. This abnormal distribution of pressure was accompanied with stronger winds than usual over the Bay area, the Peninsula and the Arabian Sea, and with a good deal of rain along the Madras coast. In consequence, temperature from the 24th to the close of the month was generally below the normal over all the Peninsular divisions except the west coast. This is shown below :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	24th November.	25th November.	26ht NoVember.	27th November.	28th November.	29th November.	30th November.
	°	°	°	°	°	°	°
Central Provinces	−2·8	−1·8	−1·4	−1·7	−1·2	−0·6	−0·6
Berar	−2·4	−1·8	−0·3	−1·1	−0·7	−0·4	−0·8
West Coast	+1·4	+0·1	−0·2	+1·4	+1·4	+1·9	+2·0
Bombay Deccan	−4·2	−5·0	−4·1	−3·0	−1·8	−0·9	−0·3
Mysore	−1·5	−3·0	+1·2	+2·4	+0·4	+0·9	−1·3
Madras Coast	−1·6	−1·6	−1·4	−1·2	−0·2	+0·8	+0·4
Madras Deccan	−3·6	−4·5	−2·9	−1·3	+0·2	+1·4	+0·9
South India	−1·7	+0·1	−1·2	−0·5	0	+0·8	+0.6

Pressure.—Pressure exceeded the normal over practically the whole Indian area by amounts which averaged 0·041″. The general excess was thus 0·036″ less than in the preceding month. It was, however, larger than in any November since 1890 when the general anomaly was also +0·041″. Compared with this general condition pressure was in local defect over the south and west of the Peninsula, in Gujarat, in the Indus Valley, along the foot of the central Himalayas, and over lower Burma and Tenasserim. Over the remainder of India pressure was in local excess. The anomalies were small and unimportant except in Malabar and west Ceylon where they exceeded −0·020″ and at Mangalore amounted to −0·044″. In the Trades region and in Arabia the pressure, on the mean of the month, was lower than usual.

The vertical pressure anomalies, as determined by the variations at the hill stations and at the neighbouring plains stations, were generally small and unimportant.

The following table gives the mean pressure variations and anomalies of the month for the eleven meteorological provinces of India :—

METEOROLOGICAL PROVINCE.	Variation from normal of mean 8 A.M. pressure of November 1902.	Pressure anomaly, November 1902.
	″	″
Burma Coast and Bay Islands	+·035	−·006
Burma, Inland	+·045	+·004
Assam	+·054	+·013
Bengal and Orissa	+·050	+·009
Gangetic Plain and Chota Nagpur	+·046	+·005
Upper Sub-Himalayas	+·043	+·002
North-West Frontier Province, Indus Valley and North-West Rajputana.	+·034	−·007
East Rajputana, Central India and Gujarat	+·041	0
Deccan	+·045	+·004
West Coast	+·020	−·021
South India	+·034	−·007

Temperature.—The temperature conditions, and more particularly the maximum or day temperature conditions, were directly related to the rainfall distribution.

The mean day or maximum temperature was in defect over nearly the whole of the Peninsula and the central parts of the country. The deficiency, on the mean of the month, was more than 2·5° at Nellore (−2·8°), Sholapur (−2·7°), Ahmednagar (−2·9°), Malegaon (−2·6°), Hoshangabad (−3·5°), Tinnevelly (−2·6°) and Saugor (−3·0°). The mean day temperature was likewise in defect over parts of inland Burma, the upper Assam Valley, north Bengal and the north Punjab. Over the remainder of India the mean maximum temperature was in excess. The largest variations were shown over the Indus Valley where Jacobabad reported an excess of 3·1° and Kurrachee of 4·3°. At the western hill stations the day temperatures were generally lower than usual.

The mean night or minimum temperature was below the normal over Burma, except lower Burma, Assam, the east Gangetic Plain, the eastern Sub-Himalayan district and the Central Provinces. The deficiency was considerable over a large part of this area, amounting to over 3·0° at Toungoo (−4°·2), Bhamo (−3·5°), Silchar (−3·4°), Chittagong (−3·4°), Sambalpur (−4·9°) and Raipur (−4·5°).

Over the remainder of the country the mean night temperature was in excess. The variations were greatest and considerable over Tenasserim (Mergui +3·1° and Tavoy +2·6°), the west coast of the Peninsula (Goa +2·6° and Surat +3·7°), the Indus Valley (Jacobabad +4·1°, Mooltan +4·4°, Khushab +4·1° and Dera Ismail Khan +4·2°), and the south Punjab (Sirsa +3·9°). On the Himalayas the mean night temperature was generally lower than usual, but the deficiency was generally small and the absolute minima recorded over northern India and the hill districts have been frequently exceeded in previous Novembers.

The mean temperature of the month was lower than usual over Burma (except lower Burma), Assam and the greater part of north-eastern and central India. The variations were generally small but equalled or exceeded 2·0° at Toungoo (—2·4°), at Bhamo (—2·6°) and at Sibsagar (—2·0°) where the night temperatures were low, and at Hoshangabad (—2·1°) where the day temperatures were low. Over the remainder of India the mean temperature was generally in excess. The variation was more than 2·5° at Moulmein (+2·7°), Surat (+2·7°,) Kurrachee (+3·7°), Jacobabad (+3·6°), Mooltan (+3·1°) and Quetta (+3·5°). This excess was mainly attributable to high night temperatures. At most of the hill stations in the western Himalayas the mean temperature was slightly lower than usual.

The following table gives temperature variation data of the month of November for eleven meteorological provinces:—

Meteorological Province.	Variation of actual from normal of		
	Mean maximum temperature, November 1902.	Mean minimum temperature, November 1902.	Mean daily temperature, November 1902.
	°	°	°
Burma Coast and Bay Islands	+1·0	+0·6	+0·8
Burma, Inland	—0·3	—2·2	—1·3
Assam	—0·4	—2·8	—1·6
Bengal and Orissa	+0·3	—1·3	—0·5
Gangetic Plain and Chota Nagpur	+0·3	—0·9	—0·3
Upper Sub-Himalayas	+0·2	+2·0	+1·1
North-West Frontier Province, Indus Valley and North-West Rajputana.	+1·4	+2·9	+2·2
East Rajputana, Central India and Gujarat.	+0·4	+1·3	+0·9
Deccan	—1·3	—0·2	—0·8
West Coast	+0·2	+1·9	+1·1
South India	—1·0	+1·0	0

Winds.—The winds were, on the whole, even lighter and less steady than usual. They were more easterly than usual over the south of the Bay (as shown by Port Blair), over south India and over the Deccan, a feature which was very noticeable last month also. They were more northerly than usual along the Burma coast, and were approximately normal in Bengal. They were more southerly than usual over the west of the United Provinces and in the adjoining hill districts, while they were rather more westerly than usual down the Gangetic Plain.

In the Trades region the winds varied irregularly from the normal. They were more easterly than usual at Zanzibar (+19°), while at the Seychelles the mean wind direction was N. 7°E., instead of the normal S. 70° E.

Humidity.—The air was drier than usual and the relative humidity below the normal within a broad band extending eastward from the west coast, Gujarat and lower Sind through the central parts of the country to north-east India and Burma. Within this band of relative dryness there were three areas where the deficiency in the relative humidity exceeded 5, *viz.*, the west coast (Bombay —6), Rajputana and the east Punjab (Jaipur and Ludhiana each —5) and the Burma coast and the head of the Bay (Diamond Island —7, Rangoon, —6 and Saugor Island —5). Over the remainder of India, to the north and south of this band, the relative humidity was higher than usual, the excess, on the mean of the month, amounting to +8 at Belgaum and to +11 at Jacobabad.

The following table gives variation data of the mean aqueous vapour pressure and of the mean humidity of nine meteorological provinces for the month of November, 1902:—

Meteorological Province.	Mean absolute humidity.		Mean relative humidity.	
	Average actual, November 1902.	Variation of actual from normal, November 1902.	Average actual, November 1902.	Variation of actual from normal, November 1902.
	"	"	%	
Burma Coast and Bay Islands.	·806	—·026	75	—4
Bengal and Orissa	·391	—·043	72	—4
Gangetic Plain and Chota Nagpur.	·424	—·011	60	—2
Upper Sub-Himalayas	·335	+·005	56	0
North-West Frontier Province, Indus Valley and North-West Rajputana.	·424	+·084	55	+5
East Rajputana, Central India and Gujarat.	·282	—·007	35	—4
Deccan	·454	+·016	58	+3
West Coast	·703	+·003	68	—4
South India	.633	+·047	75	+4

Cloud.—The variations in the cloud amount from the normal agreed closely with those of humidity. There was a broad band of deficient cloud extending eastward from the west coast, Gujarat and lower Sind through the central parts of the country to north-east India and Burma, with areas of maximum serenity over south Rajputana on the one hand and over the Burma coast and the head of the Bay on the other. To the north and south of this band the cloud amount was in excess of the average. The excess was considerable at Peshawar and Srinagar in the north, and over the south of the Peninsula and the Deccan in the south, and was greatest at Mysore (+2·3) and at Salem (+2·2). At the western hill stations the cloud amount was generally more, and at the eastern hill stations generally less, than the normal.

The following table gives variation data of the mean

cloud amount of nine meteorological provinces for the month of November, 1902 :—

METEOROLOGICAL PROVINCE.	MEAN CLOUD AMOUNT.	
	Average actual, November 1902.	Variation of actual from normal, November 1902
Burma Coast and Bay Islands	3·5	−0·9
Bengal and Orissa	2·3	−0·7
Gangetic Plain and Chota Nagpur	0·9	−0·6
Upper Sub-Himalayas	1·4	+0·1
North-West Frontier Province, Indus Valley and North-West Rajputana.	1·9	+0·3
East Rajputana, Central India and Gujarat	0·6	−0·9
Deccan	3·1	+0·5
West Coast	2·4	+0·1
South India	6·8	+1·3

Rainfall.—The rainfall of the month of November was about normal over southern India, where daily rain fell during the second half of the month. It was above the normal over the Deccan and along the west coast, where there were several showery periods during the month—more particularly between the 1st and the 7th and the 19th to the 21st. Over the whole of the remainder of India the rainfall of the month was in more or less considerable defect. There were four cold weather storms during the month which advanced from the Persian area into north-west India, but though these storms occasioned a fair amount of rain over Persia and Afghanistan and of snow over Kashmir, their effect on the weather in north-west India was unimportant, and the rain they gave insignificant. Hence over the whole of northern and a large part of central India the month's rainfall consisted of a few scattered and generally light showers.

The following table gives comparative rainfall data of the eleven meteorological provinces or divisions for November :—

METEOROLOGICAL PROVINCE.	RAINFALL.			
	Mean actual for November 1902.	Mean normal for November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	3·39	3·57	−1·33*	−37
Burma, Inland	0·15	1·24	−1·09	−88
Assam	0·31	0·80	−0·33*	−41
Bengal and Orissa	0·13	0·91	−0·78	−86
Gangetic Plain and Chota Nagpur	0·13	0·29	−0·16	−55
Upper Sub-Himalayas	0·01	0·19	−0·18	−95
North-West Frontier Province, Indus Valley and North-West Rajputana.	0	0·13	−0·12*	−92
East Rajputana, Central India and Gujarat.	0·08	0·24	−0·14*	−58
Deccan	1·31	0·79	+0·51	+65
West Coast	3·44	2·78	+0·66	+24
South India	5·97	6·05	−0·08	−1

* A reference to Table I will show that the means in columns 2 and 3 are derived from a smaller number of stations than the means in column 1. The sum of the figures in columns 2 and 3 will, therefore, not agree with the figures in column 1.

So far the discussion has been concerned almost entirely with the meteorological changes and features within India and the Indian seas. The following paragraphs deal with the meteorological changes which occurred over Extra-Indian countries, so far as they appear or may possibly be connected with the Indian weather. The western Siberian and Caucasian observations for the month of November were very fragmentary, while the changes, so far as they were recorded, were large and very irregular. There does not appear to have been any connexion between these changes and those occurring on the northern Frontier of India. At Gilgit and Chitral in Further Kashmir the daily progress of pressure was well and strongly marked. After irregular changes between the 1st and the 7th, there occurred a well-marked fall at both stations from the 8th to the 12th. This was succeeded by a recovery which lasted from the 13th to the 16th in the case of Gilgit, and to the 17th in the case of Chitral. The barometer then fell for two days after which there was a recovery which lasted up to the 22nd when the changes again became irregular. There are no barometric changes in west Siberia which agree with or would account for these movements of pressure in Further Kashmir, and the movements appear rather to be connected with the storms which advanced into north-west India from the countries to the westward than with conditions over western Siberia and central Asia. These storms form the most interesting feature of the meteorological incidents of the month. The telegrams received in Simla from the Persian area shewed that these storms made their appearance over Persia on the following dates, *viz.*, November 9th, 16th, 19th, 25th and 30th. They were accompanied in each case by a more or less brisk fall of the barometer, and by unsettled showery weather. The following gives data :—

STATION.	BAROMETRIC FALL IN 24 HOURS PRECEDING 8 A.M. OF DATE.				
	9th.	16th.	19th.	25th.	30th.
	"	"	"	"	"
Bushire	−·075	−·208	−·080	−·193	−·080
Jask	−·070	+·010	?	−·058	−·030

The storms marched eastward into north-west India, and were in each case traceable in the pressure and weather changes of the stations in the Indian system. If, however, it be attempted to find earlier indications of the existence of these storms—that is, to trace them in the opposite direction to Egypt and the Mediterranean—the attempt generally fails. Thus, on the 1st and 2nd November pressure was about normal over south-east Europe and the east of the Mediterranean. On the 3rd a large anticyclone appeared over central and south-east Europe, where it held steadily until the 24th. It was broken down on the 25th by a storm which passed in a south-easterly direction right across Europe, and from the 25th to the end of the month pressure was low over the eastern Mediterranean. This storm undoubtedly passed into the Mediterranean between the 26th and 28th, causing a barometric all over

Egypt on the 27th, 28th and 29th, but it could hardly have reached Persia by the 30th when the last storm of the month disclosed itself. On the other hand, the Egyptian observations exhibited at times changes which were not irreconcileable with the idea of their being connected with the subsequent appearance of storms over Persia. The following gives pressure data:—

STATION.	BAROMETRIC FALL IN 24 HOURS PRECEDING 8 A.M. OF								
	5th.	6th.	11th.	12th.	13th.	14th.	27th.	28th.	29th.
	"	"	"	"	"	"	"	"	"
Alexandria .	—·050	—·050	0	—·040	—·090	—·040	—·040	—·030	—·080
Cairo . .	—·050	—·030	—·020	—·040	—·050	0	—·020	—·030	—·060

The preceding data show that a brisk fall of the barometer occurred over lower Egypt on the 5th and 6th, between the 11th and 14th, and between the 27th and 29th, while the chapter on barometric depressions shows that storms appeared over the Persian area on the 9th, the 16th, the 19th, the 25th and the 30th of November. Of these five storms three were preceded by barometric falls in Egypt and two were not, so that there is practically no evidence that the Persian storms were the continuation of disturbances which had previously appeared in the Mediterranean area.

Over the north of the Trades region and the south of the Arabian Sea the pressure changes were approximately uniform throughout the month. Thus, at Perim, Aden and the Seychelles pressure ranged below the normal from the 1st to the 6th; above on the 7th and 8th; below from the 9th to the 16th or 17th; above from the 17th or 18th to the 24th; and below from the 25th to the end of the month. At Zanzibar the pressure variations were similar up to the 21st, but between the 22nd and the 27th the observations from Zanzibar were unreliable as the instruments had been moved. This is shown below:—

STATION.	VARIATION OF 8 A.M. PRESSURE FROM THE NORMAL.					
	22nd.	23rd.	24th.	25th.	26th.	27th.
	"	"	"	"	"	"
Perim	+·027	+·025	+·018	—·005	—·028	—·041
Aden	+·026	+·020	+·010	—·008	—·042	—·051
Seychelles . . .	+·029	+·011	+·023	—·025	058	—·064
Zanzibar . . .	+·167	+·140	+·183	+·178	+·131	+·108

The above shows that at the most southerly station of Zanzibar there was, according to the observations, a large excess of pressure between the 22nd and the 27th. This was not reproduced in the more northern areas, and must be attributed to faulty observations.

Over the whole of the Indian monsoon area, however, the general changes of pressure appear to have been common and universal throughout the month. Pressure appears to have risen from the 1st to the 8th, to have fallen from the 8th to the 16th; to have risen from the 16th to the 24th; and thereafter to have changed irregularly till the end of the month; and these changes, in greater or less degree, appear to have synchronously affected the whole area. The following table gives pressure variation data for each day of the month for certain selected stations, and a combined variation value for the whole monsoon area. This clearly exhibits the two general pressure oscillations:—

PRESSURE VARIATION, NOVEMBER 1902.

Date.	Bushire.	Muscat.	Jask.	Aden.	Zanzibar.	Seychelles.	Bombay.	Whole.
	"	"	"	"	"	"	"	"
1	—·020	—·093	—·088	—·106	—·104	—·110	—·093	—·088
2	+·001	—·025	—·041	—·079	—·078	—·063	—·006	—·051
3	+·044	—·040	+·045	—·044	—·074	—·046	+·025	—·016
4	+·063	+·042	+·022	—·040	—·036	—·019	+·033	+·005
5	+·033	—·025	—·007	+·002	—·027	—·005	+·039	+·001
6	+·011	+·126	+·002	—·010	—·046	—·018	+·060	+·014
7	+·031	+·053	+·046	+·003	+·028	+·026	+·070	+·034
8	+·084	+·044	+·050	+·030	+·036	+·037	+·095	+·050
9	+·005	+·036	—·023	—·035	—·066	—·021	+·060	—·011
10	—·002	+·029	—·016	—·055	—·057	—·077	+·071	—·020
11	+·027	+·026	—·037	—·039	—·068	—·060	+·018	—·020
12	—·006	—·027	—·044	—·050	—·071	—·067	—·004	—·040
13	—·029	—·009	—·024	—·046	—·038	—·082	—·011	—·035
14	—·015	—·013	—·029	—·020	—·042	—·029	—·013	—·024
15	—·018	+·006	—·107	—·046	—·050	—·029	—·021	—·040
16	—·230	—·018	—·100	—·080	—·057	—·034	—·004	—·074
17	+·027	—·090	+·019	—·018	—·029	+·021	+·074	—·001
18	+·088	+·027	...	+·046	+·005	+·027	+·046	+·041
19	+·005	—·080	—·074	+·050	+·036	+·026	+·008	+·004
20	—·082	—·079	—·029	+·010	+·005	+·011	+·031	—·016
21	+·002	—·076	+·068	+·004	—·018	+·021	+·095	+·013
22	—·030	—·108	+·028	+·026	+·167*	+·029	+·093	+·039
23	+·030	+·030	+·049	+·020	+·140*	+·011	+·082	+·035
24	+·139	+·023	+·045	+·010	+·183*	+·023	+·103	+·052
25	—·056	+·019	—·015	·008	+·178*	—·025	+·053	—·005
26	—·205	—·064	—·066	—·042	+·131*	—·058	—·001	—·066
27	—·015	—·084	—·031	—·051	+·108*	—·064	+·027	—·037
28	+·056	—·014	+·013	—·032	—·005	—·052	+·045	—·002
29	+·052	+·006	+·030	0	—·016	—·055	+·020	+·004
30	+·027	+·061	—·001	—·011	—·021	—·059	+·004	—·001

* Unreliable.

Atmospheric Pressure.

The mean 8 A.M. pressure of the Indian land area exceeded the normal by amounts which averaged 0·041″, a decrease in the general anomaly of 0·036″ since October. The local variations from this general condition were small except along the Malabar coast, showing that the relative distribution of pressure differed but little from the normal.

Pressure was in local defect over (1) Lower Burma and Tenasserim, (2) over Ceylon and the south and west of the Peninsula, (3) over Kathiawar, (4) over the Indus Valley and the west Punjab, and (5) over Bihar. It was in local excess elsewhere. The anomalies were less than 0·020″ in amount except over west Ceylon, the south-west of the Peninsula, and locally at Tavoy and Allahabad. The following gives data :—

Station.	Positive anomaly, November 1902.	Station.	Negative anomaly, November 1902.
	″		″
		Mangalore	—·044
		Calicut	—·033
		Trivandrum	—·029
		Cochin	—·026
		Hassan	—·026
Allahabad	+·021	Mysore	—·024
		Colombo	—·024
		Chitaldroog	—·022
		Tinnevelly	—·022
		Tavoy	—·021

The above shows that the excess was locally greatest over the United Provinces, and the local defect greatest in Malabar.

The chart of actual pressure distribution, Plate I, shows that pressure, on the mean of the month, was high over the Peshawar and Rawalpindi districts and over the Central India plateau, and was low in Malabar and west Ceylon, and that the pressure differences over the Indian area were somewhat greater than usual.

The variations of pressure from the normal at the hill stations were generally similar to those recorded at the neighbouring plains stations, so that the vertical pressure anomalies were small and of little importance. This is shown in the following table which gives the vertical anomalies as determined from ten pairs of stations :—

Hill Station.	Variation from normal pressure, November 1902.	Plain Station.	Variation from normal pressure, November 1902.	Vertical pressure anomaly (Hill--Plain)
	″		″	″
Quetta	+·033	Jacobabad	+·028	+·005
Leh	+·034	Lahore	+·042	—·008
Murree	+·033	Peshawar	+·031	+·002
Simla	+·048	Ludhiana	+·043	+·005
Chakrata	+·040	Roorkee	+·048	—·008
Ranikhet	+·053	Bareilly	+·051	+·002
Darjeeling	+·007?	Dhubri	+·053	—·046?
Mount Abu	+·037	Deesa	+·036	+·001
Pachmarhi	+·044	Khandwa	+·050	—·006
Wellington	+·022	Coimbatore	+·032	—·010

Pressure was slightly below the normal, on the mean of the month, over Arabia, as shown by the stations of Aden, Perim and Muscat. It was likewise in trifling defect over the Persian Gulf region, and in slight to moderate defect in the Trades region, as determined by the observations at Zanzibar and the Seychelles.

Summarising the preceding information, the data show that there was, on the mean of the month, a general excess of pressure over the greater part of the Indian land area from Tenasserim and Burma as far west as Baluchistan, but that further to the westward this excess disappeared, and was replaced by a deficiency over Persia and Arabia. The data likewise show that on the Malabar coast and in west Ceylon any excess was very slight, and that it disappeared and was replaced by a trifling deficiency at Mangalore. This deficiency apparently extended south-westward over the Arabian Sea and the Indian Ocean as far as the Seychelles (—·027″) and Zanzibar (—·005″?).

The vertical pressure anomalies were slight and of little importance.

Barometric depressions and cyclonic storms of the month.

Cold-weather storm of the 9th to 16th November.—On the 9th the barometer was falling briskly in the Persian Gulf area where the winds had changed to the eastward and south-eastward with an increase of cloud and rain at Bushire, Teheran, Ispahan and Bussrah.

The following gives data for the Persian stations on this day :—

STATION.	PRESSURE.			WIND		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches.	
Bushire .	30·030	—·075	+·005	SE	9	10	0·70	Drizzling.
Jask . .	30 002	—·070	—·023	E	9	2	...	Slight sea.
Teheran .	...	+·205	...	Calm	1	10	1·08	
Ispahan .	...	—·060	...	N	4	10	0·12	
Bussrah .	...	+·041	...	...	...	..	0·24	Cloudy.
Bahrein .	29·924	—·054	...	SSW	...	..	...	

10th November.—On the 10th the wind had shifted to north-east at Bushire where 2·05 inches of rain had been received. The barometer had been steady at that station, and the depression travelling eastward had apparently passed across, causing the shift of wind to north-east, the rain and thunder. The following gives 8 A.M. data for the Persian and Baluchistan stations for this day :—

STATION.	PRESSURE.			WIND		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inches	
Bahrein .	29·918	—·006	...	SW	...	...	...	
Bushire .	30·027	—·003	—·002	NE	6	10	2·03	Thunder.
Jask .	·012	+·010	—·016	E	15	10	...	
Ispahan .	...	+·050	...	NE	1	10	0·28	
Teheran .	...	—·050	...	E	1	10	0 05	
Chaman .	...	—·001	+·033	SSE	2	6	...	
Quetta .	...	—·006	+·032	Calm	0	6	...	
Kalat .	...	...	...	S	...	...	...	Cloudy.

In Baluchistan the sky had become more cloudy, but the barometer and wind were steady.

11th November.—The barometer had risen at all the Persian stations except Jask, but had fallen over Baluchistan, north-west India and Kashmir, and a depression was approaching the north-west frontier. The following gives 8 A.M. data for Persia, Baluchistan, north-west India and Kashmir :—

STATION.	PRESSURE.			WIND		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
Bahrein .	29·980	+·062	...	E	...	...	...	
Bushire .	30·060	+·033	+·027	NE	6	0	0·50	Sea smooth.
Jask . .	29·994	—·018	—·037	ENE	13	0	...	Sea slight.
Ispahan .	...	+·100	...	Calm	0	10	0·02	
Teheran .	...	+·100	...	Calm	2	10	0·05	
Chaman .	...	—·044	—·011	SSE	2	8	...	
Quetta .	...	—·046	—·015	Calm	1	0	...	
Kalat . .	...	...	...	S	...	...	...	Clear.
Jacobabad .	29·940	—·048	—·059	NE	0	0	...	
Mooltan .	·949	—·060	—·065	Calm	1	0	...	
Montgomery	·940	—·069	—·066	SSE	7	2	...	
D. I. Khan .	·944	—·060	—·072	Calm	1	8	...	
Khushab .	·950	—·096	—·057	NE	7	8	...	
Peshawar .	30·016	—·072	—·059	Calm	0	9	...	
Rawalpindi .	29·982	—·108	—·056	Calm	0	10	...	
Sialkot .	·955	—·103	—·042	Calm	1	7	...	
Lahore .	·963	—·086	—·042	SE	2	10	...	
Murree .	...	—·080	—·016	SSE	7	10	...	
Cherat .	...	—·096	—·051	NNE	1	4	...	
Srinagar .	...	—·045	—·013	WNW	2	10	...	
Gilgit . .	...	—·150	...	E	4	10	...	
Sonemarg .	...	—·066	...	Calm	4	10	0·20	Snowing.
Skardu .	...	—·168	...	SSW	3	10	...	
Dras . .	...	—·094	...	Calm	7	10	0·10	Snowing.

Conditions were unsettled and the sky cloudy over the above area, rain had again fallen at Bushire, Ispahan and Teheran, and light snow at Sonemarg and Dras.

12th November.—A shallow depression was shown over north-west India with its centre apparently

near Montgomery. The following gives 8 A.M. data for the storm area :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Chaman .	...	+·011	0	SSW	1	8	0·01	
Chitral .	...	—·050	...	Calm	...	6	0·37	
Jacobabad	29·887	—·053	—·116	Calm	0	0	...	
Drosh .	...	...	...	E	...	10	0·04	
Mooltan .	·901	—·048	—·118	N	1	0	...	
Dras .	...	—·137	...	SW	3	10	0·22	
D. I. Khan	·914	—·030	—·103	Calm	1	0	...	
Khushab .	·944	—·036	—·064	ENE	8	6	...	
Lahore .	·895	—·058	—·111	N	2	10	...	
Montgomery.	·888	—·052	—·127	NNE	6	1	...	
Bikaner .	·907	—·070	—·088	WSW	6	0	...	Dust haze.
Sirsa .	·911	—·071	—·097	Calm	3	0	...	
Sialkot .	·922	—·033	—·078	NNE	2	6	0·01	
Cherat .	...	—·006	—·059	NE	2	7	0·12	

Pressure was steady in Baluchistan, but the barometer had fallen briskly over north-west India and Kashmir. Heavy rain and snow had been received in Kashmir, and light showers at Chaman, Chitral, Drosh, Dras, Cherat and Sialkot. The sky was cloudy in parts of the Punjab.

November 13th.—The barometer had risen over north-west India and Kashmir but the depression was still shown over the central Punjab, though it had apparently commenced to fill up. The following gives 8 A.M. data for the storm area :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Mooltan .	29·958	+·057	—·068	Calm	1	2		
Dera Ismail Khan.	·949	+·035	—·072	Calm	2	2	...	
Khushab .	·950	+·006	—·058	NE	4	4	...	
Sialkot .	·929	+·007	—·077	NNE	3	3	...	
Lahore .	·922	+·027	—·098	Calm	3	0	...	
Ludhiana .	·935	+·015	—·071	SE	2	0	...	
Montgomery	·922	+·034	—·097	NW	5	1	...	
Sirsa .	·922	+·011	—·084	WNW	3	0	...	
Bikaner .	·918	+·011	—·085	WSW	7	0	...	Dust haze.
Ajmer .	·994	+·015	—·078	Calm	2	0	...	
Delhi .	·941	+·004	—·071	SE	2	0	...	

The sky was overcast and rain and snow had continued over Kashmir, but over north-west India the weather was clearing.

November 14th.—The shallow depression had moved eastward to the neighbourhood of Bareilly and Bahraich. The storm was, however, filling up, and was of very little consequence. The weather was fine over north-west India, and there had been no rain.

November 15th.—The depression had reached Bihar and the centre lay near Patna where the barometer was 0·090" below the normal. The weather was fine and there had been no rainfall.

November 16th.—The barometer had risen briskly to rapidly over northern India, and the depression had practically filled up.

The precipitation which accompanied this depression in the extreme north-west was followed by a slight cold wave. At Kabul the maximum temperature on the 12th was only 54·2° or 15·1° below the normal and on the morning of the 14th the minimum temperature fell to 24·4° which was 11·2° below the normal. On the 15th the minimum temperature at Simla and Murree was 39°, or 6° below the average.

Cold-weather storm of the 14th to 19th.—On the 14th the weather again became unsettled in Persia, and rain and thunder were reported from Bushire. The following gives 8 A.M. data for the Persian stations :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Bahrein .	29·934	—·007	...	SE	...	...	...	
Bushire	30·031	+·018	—·015	SSE	2	10	0·26	Thunder.
Jask .	·012	—·002	—·029	N	9	0	...	
Ispahan .	...	—·090	...	Calm	1	7	...	
Teheran .	...	—·060	...	Calm	1	10	0·01	

November 15th.—The barometer was unsteady in Persia, and rain and overcast skies continued at Bushire. The following gives 8 A.M. data for the Persian stations.

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Bahrein .	29·838	—·096	...	ESE	...	...	...	
Bushire .	30·032	+·001	—·018	SE	4	10	0·59	Raining.
Jask . .	29·937	—·075	—·107	N	7	0	...	Sea smooth.
Ispahan .	...	—·100	...	Calm	2	2	0·20	
Teheran .	...	—·150	...	NW	0	7	..	

November 16th.—The barometer had fallen very rapidly at Bushire, Ispahan and Teheran. At Bushire a south-west wind and heavy rain were reported, and rain had extended to Baghdad, Bahrein, Ispahan and Teheran. A depression was approaching Bushire from the westward. The following gives 8 A.M. data :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
Muscat	30·022	—·022	—·018	...	4	0	...	
Baghdad	29·944	—·047	—·249	Calm	2	2	0·27	
Bahrein	·832	—·006	...	SSW	...	...	0·10	
Bussrah	...	—·028	...	...	...	...	...	Fine.
Ispahan	...	—·200	...	Calm	3	3	0·40	
Teheran	...	—·240	...	Calm	1	9	0·13	
Bushire	29·824	—·208	—·230	SW	7	10	0·85	Heavy rain.
Jask	·947	+·010	—·100	E	13	0	...	Sea rough.

November 17th.—The barometer had risen rapidly to very rapidly in Persia. The wind had shifted to north-west at Bushire and to north at Bahrein, and the weather had cleared, showing that the depression had passed those stations. The following gives 8 A.M. data for the Persian and Baluchistan stations.

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
Bussrah	...	+·226	...	...	...	...	...	Fine.
Bahrein	30·037	+·205	...	N	...	...	...	
Bushire	·084	+·260	+·027	NW	10	0	...	Sea smooth.
Jask	·069	+·122	+·019	E	...	2	...	Sea rough.
Ispahan	...	+·220	...	Calm	5	1	...	
Teheran	...	+·190	...	Calm	2	4	0·21	
Chaman	...	+·037	—·052	S	4	9	...	
Quetta	...	+·043	+·008	Calm	5	0	...	
Kalat	...	...	...	S	...	...	...	Cloudy.

The depression, in its eastward course, had commenced to affect the Baluchistan, Kashmir and north-west Indian stations where the sky was cloudy to overcast.

November 18th.—A shallow depression was entering lower Sind. It was probably the same as that which passed through Persia, but it had filled up considerably and had become of very little importance. A few drops of rain had, however, fallen at Kabul, Parachinar, Chitral and Killa Drosh. The depression continued to drift eastward after it had reached India, and lay over Rajputana on the 19th where apparently it slowly filled up.

A slight cold wave followed this depression but it was at no time of any importance or extent. At Kabul on the 18th the maximum thermometer fell to 47·2° or to 17° below the normal, and at Peshawar on the same date the maximum was 62·8° or 13·4° below the normal.

Cold-weather storm of the 20th to 24th.—On the 20th the weather again became unsettled in Persia where the barometer had fallen and a light shower had been received at Teheran. This continued during the 21st and 22nd, when rain was reported from Bushire, Teheran and Ispahan. On the 23rd the barometer was falling over Baluchistan and north-west India and rising in Persia, and a depression probably entered north-west India on this day. The disturbance was, however, so extremely slight that very little indication of its presence was afforded by the pressures over north-west India, and by the following day—the 24th—it had apparently filled up. It occasioned light rain on the 23rd or 24th at Kabul, Parachinar, Chitral, Gilgit and Killa Drosh, as well as at Murree, Rawalpindi, Cherat and Peshawar, and some snow in Kashmir.

Cold-weather storm of the 25th to 28th.—On the 25th the barometer was falling briskly to rapidly in Persia, and rain had recommenced at Baghdad, Bushire and Bussrah. At Bahrein the wind was southerly. The following gives 8 A.M. data for the Persian stations :—

Station.	Pressure.			Wind.		Cloud.	Rainfall.	Weather.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch.	
Baghdad	30·021	—·149	—·246	Calm	0	8	0·45	
Bussrah	...	—·082	...	...	...	...	0·21	Rainy.
Bahrein	29·985	—·054	...	S	...	...	...	
Bushire	30·022	—·193	—·056	NE	5	7	0·20	Sea smooth.
Jask	·055	—·058	—·015	NW	11	0	...	Nor'-wester.
Ispahan	...	—·090	...	Calm	3	7	...	
Teheran	...	—·100	...	N	2	10	...	

November 26th.—The barometer had continued to fall at the Persian stations. The following gives 8 A.M. data:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Baghdad .	29·949	—·072	—·320	W	0	6	0·71	
Bussrah .	...	—·222	...	...	...	...	0·05	Cloudy.
Bahrein .	29·921	—·064	...	S	...	...	...	
Bushire .	29·875	—·147	—·205	SSE	7	10	0·30	Sea slight.
Jask . .	30·006	—·049	—·066	E	10	6	...	
Ispanan .	...	—·220	...	SW	1	7	...	
Teheran .	...	—·250	...	NNE	2	6	0·31	

The skies were thickly clouded and rain was reported from Bussrah, Bushire, Baghdad and Teheran. In Baluchistan the weather remained fine.

November 27th.—The barometer had begun to rise rapidly in Persia and to fall slowly in Baluchistan. The following gives 8 A.M. data for the stations in this area:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER
	"	"	"				Inch.	
Baghdad .	30·212	+·263	—·057	Calm	2	2	...	Dust haze.
Bussrah .	...	+·296	...	...	...	...	...	
Bahrein .	30·000	+·079	...	N	...	...	...	
Bushire .	·067	+·192	—·015	NW	17	0	0·02	Sea rough.
Jask . .	·043	+·037	—·031	E	12	4	...	Do.
Ispahan .	...	+·100	...	W	3	0	0·27	
Teheran .	...	+·095	...	Var.	2	3	0·06	
Chaman .	...	—·017	—·040	SE	5	6	...	
Quetta . .	...	—·006	+·011	ESE	4	1	...	

Rain had fallen at Bushire, Teheran and Ispahan, but had not extended to Afghanistan or Baluchistan though the depression had commenced to advance eastward and lay apparently between Bahrein and Jask.

November 28th.—The barometer had fallen over the north Punjab and Kashmir, while it had risen over Baluchistan and Persia. This is shown below:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Baghdad .	30·265	+·053	—·001	Calm	0	0	...	
Bussrah .	...	+·012	...	...	...	...	...	
Bahrein .	30·053	+·053	...	N	...	...	...	
Bushire .	·140	+·073	+·056	N	10	1	...	Sea slight.
Jask . .	·088	+·045	+·013	E	17	3	...	
Ispahan .	...	+·060	...	Calm	3	0	...	
Teheran .	...	+·130	...	NNE	2	3	...	
Chaman .	...	+·007?	—·032	ENE	10	8	0·06	Dust storm.
Quetta .	...	+·036	+·048	Calm	5	3	0·03	Dust haze.
D. I. Khan .	30·151	—·001	+·057	Calm	1	3	...	
Khushab .	·190	—·001	+·092	SS W	2	5	...	
Lahore .	·169	—·009	+·090	Calm	1	8	...	
Sialkot .	·169	—·008	+·089	Calm	0	2	...	
Rawalpindi .	·188	—·035	+·070	Calm	0	10	...	
Peshawar .	·193	—·038	+·043	Calm	1	9	...	
Kabul . .	...	...	...	SE	...	10	0·14	
Murree .	...	—·006	+·070	Calm	2	10	...	
Parachinar .	...	—1·03	...	N	2	10	0·05	
Srinagar .	...	—·037	+·094	SSE	1	8	...	
Sonemarg .	...	—·067	...	W	16	10	...	
Skardu .	...	—·078	...	Calm	1	9	...	
Dras . .	...	—·060	...	Calm	0	8	...	
Leh . .	...	—·044	+·116	SSW	1	2	...	

The depression was entering north-west India but was exceedingly slight and shallow. It filled up during the day. It occasioned light rain at Kabul and Parachinar, but gave no rain to upper India or snow to Kashmir.

Between the 12th and the 17th the weather was cyclonic and disturbed over the south-west of the Bay. Rain extended over the south of the Peninsula and Ceylon between the 15th and 18th, but it does not appear from the observations that there existed at any time a definite storm with a well-defined centre.

Summary of the Reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Kurram.*—Snow fell on the Sufed-koh on the 11th, 12th, 13th, 18th, 23rd, 24th, 28th and 29th November down to about 10,000 feet. The snow on the Sufed-koh had not at the close of the month reached any considerable depth, but the snow during the month was heavier than in the same month last year.

(2) *Wana.*—The snowfall in this district was as follows:—

17th November.

Marwatti (11,000 feet) . . .	4 inches.
Kanigorum (6,500 feet) . . .	3 inches.
Pirghal (11,000 feet) . . .	6 inches.

On the 27th and 28th there were a few showers of rain during the day and night.

On the 30th November there were about 2″ of snow on the hills from 9,000 feet upwards. The snowfall was heavier than during the same month of the preceding year.

(3) *Chitral.*—The following falls of snow occurred during the months of November and December.

November.—Snow was lying on the peaks 10,000 feet high.

December.—The snowfall covered the hills from 3,000 to 5,000 feet, and the snowline descended rapidly during the month.

December 15th.—A snow storm covered nearly all the hills down to 3,000 feet. The snow was from 12 to 18 inches in depth.

December 28th to 30th.—From 1 to 2 inches of snow fell, bringing the snowline down to 5,000 feet.

The accumulation of snow on the highest peaks was from 4 to 5 feet.

The snowfall up to the close of December was much greater than in the autumn of 1901.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Simla.*—The following is the snowfall report for the Bushahr division of the Simla district:—

12th :—2″ of snow fell at 9,000 feet and 2′ on peaks
13th :—2″ „ „ „ „ „ „ „ „ „ „
14th :—2″ „ „ „ „ „ „ „ „ „ „
15th :—2″ „ „ „ „ „ „ „ 2½ „ „

The accumulation of snow, so far as it could be ascertained on the higher passes, was:—

Rupini Pass	7 feet.
Burenda „	7 „
Harrng „	6½ „
Shatul „	
Bulder „	7 „
Runang „	5 „

All the passes except Burenda, Shatul and Bulder remained open throughout the month.

(2) *Chamba.*—No snow accumulation.

(3) *Pangi and Barmaur.*—Between the middle of November and the middle of December snow fell as under:—

At Kilar (8,400 feet) Pangi; two inches of snow fell on the 24th, the snowline descending to 7,000 feet.

At Barmaur two inches of snow fell on the 14th November, the snow descending to 6,500 feet.

The accumulation of snow on the passes at the close of the month was as follows:—

Pangi.—Sach Pass.—Snow about 7 feet deep.
Purthi Pass.—Kilar road open.
Kilar.—3 feet of snow lying in shady places.

III.—UNITED PROVINCES HIMALAYAS.

(1) *Almora.*—Snow fell as under in this district:—

Malla Johar.

4th November	1 foot.
9th „	2 feet.
14th „	1 foot.
18th „	1 „
25th „	1 „
	6 feet

Malla Danpur.

10th November	1 foot.

Byans, Chandas and Darma.

14th November	1 foot.

The accumulation of snow at the close of the month was as follows:—

Malla Johar.

Utadhura	6 feet.
Ralam Dhura	3 „

Malla Danpur.

Pindari, Kaphini, Kantela	1 foot.

Byans, Chandas and Darma.

The depth of snow was	1 foot

The snowfall during the month was generally greater than during November 1901.

(2) *Garhwal.*—There was a light fall of snow on the 5th and 12th in the region of perpetual snows.

Summary of Special Storm Reports.

Local storms were even less prevalent than usual during November 1902 :—

November 2nd.—Thunder storms passed over Khandwa in the morning and again in the evening at about 5 P.M.

" *12th.*—A local storm passed over Srinagar giving rain to the plains and snow to the mountains.

" *21st.*—A local storm giving some rain passed over Ootacamund on the night of the 21st.

" *23rd.*—There was a slight storm at Srinagar on the afternoon of the 23rd when snow fell on the hills.

An earthquake occurred at Mount Abu on the 5th November at 11-53 P. M. (Madras time). First there came a shock and then wave like shaking following a rattling noise lasting from 30 to 35 seconds.

A slight shock of earthquake was felt at Srinagar on the 7th November at 7-47 A.M. lasting 2 seconds. The direction was apparently from north-east.

An earthquake occurred at Mount Abu on the 8th November at 7-4 A.M. (Madras time), lasting 37 seconds. A sharp shock with rattling noise following. The direction was from south-east.

A slight shock of earthquake was felt at Srinagar on the 25th November at 9-22 P.M., lasting 6 seconds only. The direction was from south-west.

Brief Summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—During the first two days of the month the cyclonic storm described in last month's Weather Review still lay over the west of the Arabian Sea and the winds were consequently more or less irregular. On the 3rd and 4th when the storm had disappeared, the winds over the greater part of the surface of the sea were variable and the mean force of the winds for the whole sea was lower than at any other time during the month. On the 5th the direction settled into north-east and the strength increased. On the 14th local south-westerly winds prevailed over the south-east of the sea but with this exception, ordinary north-east winds of the winter monsoon blew over the whole sea until the 23rd. On the 24th and 25th there was another period of variable or easterly winds but from the 26th to the end of the month steady north-east winds prevailed while the force was higher than at any other period in the month. The air movement, on the mean of the month, was 3·2 which was 0·3 above the normal. It was as low as 2·2 on the 4th and as high as 4·4 on the 28th, so that the mean daily strength varied considerably during the month.

Bay of Bengal.—During the first three days of the month the wind was more or less variable over the Bay and was southerly and south-easterly over the south-west of the Bay. On the 4th the northerly winds of the winter monsoon began to extend southward, and on the following day, the 5th, they were fairly general over the whole surface of the Bay. These winds continued general until the 12th when cyclonic conditions appeared over the south of the Bay and southerly (south-west and south-east winds) were reported. Variable southerly to easterly winds continued in the south of the Bay until the 18th when they began to disappear and ordinary north-east winds were again blowing over the whole surface of the Bay on the 20th. These winds continued from the 20th up to the close of the month.

The winds, on the mean of the month, were of about normal strength, the mean force for the month having been 3·1 while the average normal force is 3·2.

Winds were lighter than usual from the 2nd to the 6th and were particularly light on the 3rd when the mean force was only 1·6, about half the average. The force then increased and was generally more or less above the normal until the 16th when a period of three days occurred during which the wind was below the average. On the 20th with the setting in of the ordinary north-east winds the strength again increased and exceeded the normal from that date until the close of the month. Between the 12th and 16th when the weather was unsettled over the south of the Bay winds of forces 5 and 6 were reported from some vessels. The wind, on the average of the whole surface, was strongest on the 22nd and 24th when the mean force was 3·9.

Equatorial Belt.—There were no data available for the east of the Equatorial Belt. Over the western half the winds were variable. Variable and southerly winds prevailed from the 1st to the 4th after which date north-easterly winds suddenly spread over a large part of this area. On the 9th these north-east winds retreated again and south-east Trades extended northward and held in this area until the 16th. On the 17th north-east winds reappeared and had extended as far south as Lat. 12° S. by the 21st. From this date until the close of the month north-easterly and easterly winds were general over the whole of the west of the Equatorial Belt. The data for Zanzibar and the Seychelles show that the rainfall of the month was normal at the former and in slight excess at the latter station.

Temperature of the Air.

The temperature conditions of the month and more particularly the day or maximum temperatures were more or less directly related to the rainfall distribution.

The mean maximum or day temperature of the month was in defect over the Peninsula, the Satpuras, the Central India plateau and part of the west Gangetic plain. Within this large area there are shown—over the Madras Deccan, the Bombay Deccan and the Central India plateau—smaller areas within which the deficiency was more than 2° and on comparing these areas with the actual distribution of rainfall as given in Plate IV it will be observed that they agree roughly with the regions of heavier rainfall. The following gives comparative data for the stations at which the deficiency was more than 2° :—

Station.	Mean maximum temperature.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	°	°	°
Hoshangabad	80·8	84·3	−3·5
Saugor	79·0	82·0	−3·0
Ahmednagar	82·4	85·3	−2·9
Nellore	83·9	86·7	−2·8
Sholapur	84·8	87·5	−2·7
Malegaon	84·5	87·1	−2·6
Tinnevelly	86·1	88·7	−2·6
Hyderabad (Deccan)	81·6	83·8	−2·2

In addition to the above main area of deficiency the maximum temperature was in defect, on the mean of the month, over parts of the North-West Frontier Province and of the Punjab; over part of Bihar and of north Bengal and over the east of Burma. The deficiency was small in all three regions but was apparently directly related to the precipitation which the rainfall chart shows occurred during the month over the north-west Himalayas, the Sikkim Himalayas and the east of Burma.

Over the remainder of India the mean day temperature was in excess. The excess was small and unimportant generally, but was 2°·0 or more at the stations for which comparative data are given below :—

Station.	Mean maximum temperature.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	°	°	°
Kurrachee	91·7	87·4	+4·3
Jacobabad	89·9	86·8	+3·1
Moulmein	91·4	88·4	+3·0
Hyderabad (Sind)	90·8	88·0	+2·8
Deesa	93·5	91·5	+2·0

The above shows that the hottest area, relatively to the normal, was Sind and northern Gujarat.

The following gives the highest maximum temperature recorded during the month in each of the divisions of India with the name of the station recording it, together with the highest temperature previously recorded in November at that station :—

Province or Division.	Station.	Highest maximum temperature recorded in November 1902.	Date on which recorded	Highest maximum temperature recorded in November previous to 1902.	Year in which recorded.
		°		°	
Burma	Yamethin	94·3	6th	98·0	1896
Assam	Silchar	89·5	1st	94·5	1900
Bengal	Midnapore	90·3	4th	97·3	1896
Orissa	Cuttack	93·4	5th	96·8	1886
Bihar	Buxar	88·0	4th	95·5	1896
Chota Nagpur	Chaibassa	89·3	3rd	94·7	1896
U. P. of Agra and Oudh.	Jhansi	90·2	6th & 8th	98·2	1872
N.-W. F. Province and Punjab.	Mooltan	92·3	7th & 9th	103·9	1878
Sind	Hyderabad	98·1	6th & 12th	100·7	1895
Rajputana	Deesa	98·1	8th	103·1	1901
Gujarat	Bhuj	97·3	7th	100·3	1901
Central India	Neemuch	89·0	7th	96·0	1901
Central Provinces.	Chanda	92·2	5th	96·2	1899
Berar	Akola	92·4	6th	97·5	1896&1899
West Coast	Ratnagiri	94·9	8th	98·8	1896
Bombay Deccan	Poona	90·5	5th	96·5	1896
Mysore	Mysore	86·1	6th & 7th	88·1	1900
Madras Coast	Vellore	89·4	6th	96·9	1898
Madras Deccan	Cuddapah	96·2	5th	97·1	1895
South India	Tinnevelly	91·2	1st	98·3	1892

The above shows that even in the region of excessive day temperature the absolute maxima were less high than those previously registered.

The maximum temperatures at the hill stations in north-west India were generally considerably lower than usual. The following gives data for those stations at which the deficiency was more than 2° :—

Hill Station.	Mean maximum temperature.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	°	°	°
Cherat	63·5	67·2	−3·7
Srinagar	56·9	60·3	−3·4
Murree	57·7	60·9	−3·2
Leh	44·8	47·6	−2·8

On the other hand, at the Baluchistan and the eastern, central and southern hill stations the mean day temperature was generally normal or slightly above the normal.

The distribution of the mean night or minimum temperature exhibited considerable differences from that of the day temperature.

The mean night temperature of the month was below the normal over Burma, Assam, the east Sub-Himalayas, the east Gangetic Plain and the east Satpuras. The deficiency was considerable over a large part of this area and was more than 2°·0 at the following stations:—

Station.	Mean minimum temperature. Actual, November 1902.	Normal, November	Variation of actual from normal, November 1902.
	°	°	°
Sambalpur	57·4	62·3	−4·9
Raipur	56·2	60·7	−4·5
Toungoo	65·8	70·0	−4·2
Bhamo	55·7	59·2	−3·5
Silchar	60·2	63·6	−3·4
Chittagong	62·4	65·8	−3·4
Thayetmyo	64·3	67·3	−3·0
Benares	53·2	56·1	−2·9
Jessore	61·2	64·0	−2·8
False Point	62·9	65·5	−2·6
Sibsagar	57·1	59·6	−2·5
Dhubri	61·1	63·5	−2·4
Kindat	61·9	64·3	−2·4
Yamethin	64·9	67·0	−2·1

Over the remainder of the country the mean night temperature was in excess of the normal. The excess was greatest, and more than 4°·0 over the upper Indus Valley, but was more than 2°·0 over Tenasserim, the west of the Peninsula and north-west India. This is shown below:—

Province or Division.	Station.	Mean minimum temperature. Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
		°	°	°
Upper Indus Valley.	Mooltan	56·8	52·4	+4·4
	Dera Ismail Khan	51·2	47·0	+4·2
	Khushab	53·8	49·7	+4·1
	Jacobabad	54·9	50·8	+4·1
Tenasserim	Mergui	72·8	69·7	+3·1
	Tavoy	71·1	68·5	+2·6
	Moulmein	73·4	71·1	+2·3
West of Peninsula.	Surat	66·5	62·8	+3·7
	Trivandrum	74·9	72·1	+2·8
	Goa	74·8	72·2	+2·6
	Bombay	75·8	73·3	+2·5
	Rajkot	61·6	59·3	+2·3
	Karwar	71·6	69·4	+2·2
North-West India.	Ajmer	54·9	51·0	+3·9
	Sirsa	53·4	49·5	+3·9
	Peshawar	48·9	45·1	+3·8
	Sialkot	53·5	49·9	+3·6
	Rawalpindi	46·7	43·3	+3·4
	Montgomery	53·3	50·9	+2·4
	Ludhiana	53·1	50·9	+2·2

At the hill stations in northern India the mean minimum temperature was generally normal or in slight defect but in Baluchistan it was in considerable excess. The following gives comparative data;—

Hill Station.	Mean minimum temperature. Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	°	°	°
Quetta	37·5	32·1	+5·4
Chaman	47·6	44·8	+2·8

The variations of the mean temperature of the month were small in amount over the greater part of the country. Temperature was generally higher than usual over Tenasserim and the Burma coast, the coasts of the

Peninsula and north-west India and was generally lower than usual elsewere. The variations were more than 2°·0 in amount at the stations for which comparative data are given below :—

Station.	Positive temperature anomaly, November 1902.	Station.	Negative temperature anomaly, November 1902.
	°		°
Kurrachee	+3·7	Bhamo	—2·6
Jacobabad	+3·6	Toungoo	—2·4
Mooltan	+3·1	Hoshangabad	—2·1
Surat	+2·7		
Moulmein	+2·7		
Mergui	+2·5		
Hyderabad (Sind)	+2·5		
Lahore	+2·4		
Dera Ismail Khan	+2·3		
Sialkot	+2·1		
Bombay	+2·1		

The mean temperature was below the normal in Afghanistan, above the normal in Baluchistan, below the normal at the head of the Persian Gulf, but above on the Mekran coast and over Arabia. In the south-east Trades region the temperature variations were irregular. The following gives data for the stations in these areas :—

Station.	Mean daily temperature. Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	°	°	°
Kabul	46·9	51·2	—4·3
Quetta	51·9	48·4	+3·5
Chaman	58·6	57·1	+1·5
Bushire	69·8	70·2	—0·4
Jask	77·4	76·0	+1·4
Muscat	78·4	77·8	+0·6
Aden	81·1	79·8	+1·3
Perim	83·8	82·1	+1·7
Zanzibar	81·1	79·6	+1·5
Seychelles	78·6	79·0	—0·4

The following are the chief features of the temperature conditions of the month over India :—

(1) The temperature was in more or less considerable excess, both by day and night, over the greater part of north-west India.

(2) The temperature was in general defect by day and in excess by night over the Peninsula.

(3) It was in excess, both by day and night, over Tenasserim and the Burma coast.

(4) The night temperature was in considerable defect and the day temperature about normal over inland Burma and north-east India.

(5) At the north-west hill stations both the day and night temperatures were generally lower than usual.

The following table gives comparative temperature data for 57 meteorological divisions of India :—

Province.	Division.	Actual temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of month of Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	89·3	73·8	81·5	15·5	22·8	+1·7	+2·1	—0·4
	Lower Burma (Deltaic)	87·2	73·9	80·5	13·3	19·7	+0·8	+0·9	—0·1
	Central do.	87·9	65·1	76·5	22·9	34·6	+0·3	—3·6	+3·9
	Upper do.	84·9	63·1	74·0	21·8	34·4	—0·6	—2·0	+1·4
	Arakan	86·1	69·6	77·9	16·5	25·7	+1·0	—1·8	+2·8
Bengal and Assam	Eastern Bengal	82·9	63·2	73·1	19·7	30·6	+0·1	—1·4	+1·5
	Assam (Surma)	85·1	60·2	72·7	24·9	38·6	+0·3	—3·4	+3·7
	Do. Hills	67·1	49·2	58·2	18·0	29·2	...	...	...
	Do. (Brahmaputra)	78·7	58·7	68·7	20·0	29·9	—0·8	—2·5	+1·7
	Deltaic Bengal	83·1	62·9	73·0	20·2	32·0	+0·8	—1·7	+2·5
	Central do.	82·6	62·3	72·4	20·3	29·8	+0·7	0	+0·7
	North do.	81·0	59·9	70·5	21·1	29·6	—1·0	—1·4	+0·4
	Bengal Hills	54·8	42·0	48·4	12·8	23·5	+0·6	—0·5	+1·1
	Orissa	84·6	64·3	74·5	20·3	33·3	+0·9	—1·9	+2·8
	Chota Nagpur	80·9	57·7	69·3	23·2	34·4	+0·3	0	+0·3
	South Bihar	82·9	59·0	71·0	23·9	34·2	+0·2	—0·3	+0·5
	North do.	81·6	58·5	70·1	23·1	32·4	—0·5	—1·0	+0·5

Provinces.	Division.	Actual temperature.					Variation from normal of month.		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
United Provinces of Agra and Oudh.	United Provinces (East)	83·4	53·4	68·4	30·0	41·7	+0·8	−2·2	+3·0
	Oudh (South)	83·7	54·5	68·1	31·2	41·6	+0·4	−0·3	+0·7
	Do. (North)	83·1	55·4	69·3	27·7	37·6	+0·3	−1·2	+1·5
	United Provinces (Central)	84·7	55·6	70·2	29·1	39·2	+0·2	−0·3	+0·5
	Do. do. (West)	83·6	54·1	68·9	29·6	39·0	+0·8	+0·8	0
	Do. do. (Submontane, East).	81·1	56·3	68·7	24·8	32·8	−0·5	−2·0	+1·5
	Do. do. (Submontane, West).	79·1	51·6	65·4	27·5	36·5	+0·2	+0·1	+0·1
	Do. do. (Hills)	59·3	44·5	51·9	14·8	22·8	−0·7	−0·3	−0·4
Punjab and N.-W. F. Province.	Punjab (South-East)	82·4	57·8	70·1	24·6	35·1	−0·5	+1·6	−2·1
	Do. (South)	83·5	52·2	67·9	31·4	42·6	+0·9	+3·9	−3·0
	Do. (Central)	83·6	51·6	67·6	32·0	44·4	0	+4·8	−4·8
	Do. (Submontane)	81·1	53·3	67·2	27·8	39·2	+0·4	+2·9	−2·5
	Do. (Hills)	55·0	34·6	44·8	20·4	39·5	−2·6	0	−2·6
	Do. (North)	70·0	47·8	62·0	28·2	41·1	−1·2	+3·6	−4·8
	Do. (West)	83·9	53·8	68·9	30·1	44·5	+0·5	+3·8	−3·3
Bombay and Malabar Coast Districts (Madras).	Malabar	86·7	74·6	80·7	12·1	17·8	+0·3	+1·5	−1·2
	Madras (South Central)	85·5	70·0	77·7	15·5	26·2	−1·3	+1·3	−2·6
	Coorg	75·0	60·7	67·8	14·3	23·9	−0·9	+0·6	−1·5
	Mysore	80·1	64·3	72·3	15·9	27·8	−0·7	+1·4	−2·1
	Konkan	87·7	73·6	80·7	14·1	23·8	+0·1	+2·3	−2·2
	Bombay Deccan	83·8	61·5	72·7	22·3	35·8	−1·9	+0·9	−2·8
	Hyderabad (North)	81·8	60·3	71·1	21·5	34·5	...	...	...
	Khandesh	83·5	58·0	70·8	25·5	40·6	−2·8	+1·3	−4·1
Central Provinces and Berar.	Berar	86·3	57·7	72·0	28·6	43·5	−0·7	+0·3	−1·0
	Central Provinces (West)	84·0	57·8	70·9	26·2	37·0	−1·4	−0·1	−1·3
	Do. (Central)	81·6	55·8	68·7	25·8	37·4	−1·1	−0·5	−0·6
	Do. (East)	84·6	56·8	70·8	27·8	42·0	+1·1	−4·7	+5·8
Bombay (North).	Gujarat	92·3	66·2	79·2	26·1	35·4	+1·2	+1·9	−0·7
	Kathiawar and Cutch	90·2	64·9	77·6	25·4	37·8	+0·9	+1·5	−0·6
	Sind	90·8	60·6	75·7	30·2	41·3	+3·4	+3·1	+0·3
	Baluchistan Hills	67·4	34·3	50·9	33·1	52·8	+0·9	+4·1	−3·2
Rajputana and Central India.	Central India (East)	81·5	54·1	67·8	27·4	37·6	−1·7	+0·7	−2·4
	Rajputana (East), Central India (West)	86·6	55·6	71·1	31·0	39·5	+1·4	+0·8	+0·6
	Do. (West)	89·3	58·2	73·7	31·2	40·9	+1·3	+0·6	+0·7
Madras	East Coast (North)	84·0	70·1	77·1	13·9	26·1	+0·5	−0·2	+0·7
	Hyderabad (South)	83·5	63·8	73·6	19·7	34·2	−1·8	+0·4	−2·2
	Madras (Central)	87·0	67·5	77·3	19·4	33·5	−0·8	+1·2	−2·0
	East Coast (Central)	84·1	72·3	78·2	11·8	22·8	−1·8	+0·9	−2·7
	Do. (South)	84·2	73·7	79·0	10·4	20·9	−1·1	+1·5	−2·6
	Madras (South)	85·4	73·4	79·2	12·1	19·5	−1·8	+0·1	−1·9

The above shows that the mean maximum temperatures of the month exceeded 90° in Gujarat, Kathiawar and Sind while they were below 80° in the north Punjab, the west submontane division of the United Provinces, Coorg and the Brahmaputra Valley. The mean temperature was highest and over 80° in Tenasserim, lower Burma, Malabar and the Konkan. The mean daily range exceeded 30° in parts of upper and central India.

The following is a brief sketch of the more important changes in the temperature conditions during the month:—

At the commencement of the month rain was falling over the central parts of India and the Peninsula and the mean temperature was lower than usual over the central divisions of northern India and the inland districts of the Peninsula, while it was high over the Indus Valley, Bengal and Burma. The following gives variation data for all divisions for the 24 hours preceding 8 A.M. of the 1st to indicate the conditions obtaining at the commencement of the month:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 1st November.	Mean minimum temperature, 1st November.	Mean daily temperature, 1st November.
	°	°	°
Burma	+1·9	−0·3	+0·8
Assam	+0·8	−1·4	−0·3
Bengal	+2·1	+3·0	+2·6
Orissa	+2·0	+0·9	+1·5
Bihar	−3·0	+2·3	−0·4
Chota Nagpur	−1·2	+3·6	+1·2
United Provinces of Agra and Oudh	−4·8	+2·6	−1·1

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 1st November.	Mean minimum temperature, 1st November.	Mean daily temperature, 1st November.
	°	°	°
North-West Frontier Province and Punjab.	—2·6	+4·9	+1·2
Sind	+2·8	+4·2	+3·5
Rajputana	—2·3	+2·4	+0·1
Gujarat	—2·5	+3·1	+0·3
Central India	—12·9	+7·1	—2·9
Central Provinces	—7·4	+5·4	—1·0
Berar	—10·8	+5·7	—2·6
West Coast	—0·9	+2·4	+0·8
Bombay Deccan	—5·0	+6·0	+0·5
Mysore	—2·9	+2·5	—0·2
Madras Coast	—2·3	+1·4	—0·5
Madras Deccan	—6·4	+2·5	—2·0
South India	—1·0	—0·4	—0·7

On the following day, the 2nd, a very general rise occurred, particularly in Khandesh and the Central Provinces, where a large area of high temperature was appearing. This area of high temperature formed the principal feature of the temperature distribution for the next three days. It spread eastward and southward across and over the Peninsula and was very strongly marked on the 4th and 5th. The following gives comparative temperature data for the central and Peninsular divisions for the 4th and 5th to illustrate the extension of this high temperature area:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	4th November.	5th November.
	°	°
Central Provinces	+3·9	+1·8
Berar	+5·5	+4·3
West Coast	+0·5	+2·1
Bombay Deccan	+3·0	+3·2
Mysore	+2·3	+2·3
Madras Coast	+1·5	+2·9
Madras Deccan	+1·6	+3·4
South India	+0·7	+1·6

The excess was wholly attributable to the high night temperatures, as during these three days the maximum temperature was generally lower than usual. The following gives data for those stations at which the night temperature was more than 10° in excess of the normal:—

DATE.	Station.	MINIMUM TEMPERATURE.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
		°	°	°
4th November	Akola	73·3	60·8	+12·5
	Rajkot	73·7	62·4	+11·3
	Khandwa	70·1	59·5	+10·6
	Surat	75·5	65·4	+10·1
5th ,,	Surat	77·1	65·3	+11·8
	Akola	71·8	60·6	+11·2
	Veraval	79·3	69·2	+10·1

On the 5th a slight area of low temperature appeared over northern India, and rain occurring in the upper Assam Valley, upper Burma and at Darjeeling on the 5th and subsequent days, this area of low temperature intensified. It subsequently extended southward and south-westward until it finally reached the Deccan where it was very strongly marked. The following comparative data from the 5th to the 12th show the extension and advance of this area:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF							
	5th Nov.	6th Nov.	7th Nov.	8th Nov.	9th Nov.	10th Nov.	11th Nov.	12th Nov.
	°	°	°	°	°	°	°	°
Assam	—0·6	—1·7	—2·6	—1·2	—1·3	—1·0	—0·9	—2·0
Bengal	+1·0	—0·2	—1·7	—2·0	—1·8	—1·4	—0·7	+0·3
Orissa	+4·9	+2·8	—1·2	—3·5	—3·9	—3·0	—1·6	—0·8
Bihar	—0·9	—1·5	—1·5	—1·1	—0·9	—1·2	+0·4	+0·4
Chota Nagpur	+1·3	—0·2	—1·4	—1·3	—2·0	—1·2	+0·1	0
United Provinces	—0·8	—0·6	—0·1	—0·5	—0·7	—0·5	+0·1	+1·0
Central Provinces	+1·8	+0·7	—0·2	—1·8	—3·3	—3·2	—2·6	—2·9
Berar	+4·3	+4·8	+1·0	—0·5	—3·9	—2·4	—2·8	—2·7
Bombay Deccan	+3·2	+2·9	+3·3	+2·5	—2·3	—5·2	—5·1	—5·5

During this period, from the 5th to the 13th, the mean temperature was steadily high over north-west India and Baluchistan, as is shown below:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of								
	5th Nov.	6th Nov.	7th Nov.	8th Nov.	9th Nov.	10th Nov.	11th Nov.	12th Nov.	13th Nov.
	°	°	°	°	°	°	°	°	°
Baluchistan	+0·8	+1·5	+2·8	+5·5	+7·2	+7·4	+7·4	+2·9	—6·3
North-West Frontier Province and Punjab.	+2·1	+1·4	+1·0	+1·5	+1·8	+3·1	+3·5	+4·1	+2·9
Sind	+3·1	+2·8	+3·3	+2·1	+1·5	+3·2	+4·2	+6·7	+4·8
Rajputana	+1·1	+0·9	+1·4	+2·1	+1·2	+2·1	+2·3	+2·4	+1·9
Gujarat	+4·5	+3·4	+2·0	+2·7	+2·0	+0·1	—0·2	+0·2	—0·9

Between the 11th and the 14th, light snow and rain fell over Kashmir and the north Punjab, and on the 13th and 14th temperature fell briskly over parts of north-west India. This fall broke down the high temperatures, which had previously prevailed over the whole of this region, and on the 15th and 16th, the mean temperature was generally normal or below the normal over the greater part of the country. The following gives comparative data for these two days for all divisions in illustration:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	14th November.	15th November.
	°	°
Burma	—2·4	—0·9
Assam	—2·4	—2·0
Bengal	—0·9	—1·4
Orissa	+0·8	—0·5
Bihar	—0·1	+0·5
Chota Nagpur	+0·6	+1·0
United Provinces of Agra and Oudh	+1·7	+2·2
North-West Frontier Province and Punjab	+1·4	—1·1
Sind	+0·7	+0·7
Rajputana	+1·7	—0·4
Gujarat	—1·3	—0·8
Central India	—0·1	+1·1
Central Provinces	—1·7	—1·2
Berar	—2·6	—1·9
West Coast	—0·4	+0·1
Bombay Deccan	—1·7	—1·0
Mysore	+2·0	+2·4
Madras Coast	+0·5	+0·5
Madras Deccan	+1·3	+0·2
South India	+2·0	+1·3

On the 16th the mean temperature was rising fast at Kurrachee and in Baluchistan and this rise continued and extended during the following day. The following gives data for Baluchistan and Sind for these two days:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	16th November.	17th November.
	°	°
Baluchistan	+2·0	+8·9
Sind	+2·1	+2·1

During the 18th and 19th the mean temperature increased very generally and from the 20th to the 22nd, the temperature generally exceeded the normal except over Burma and north-east India. The following gives data for all divisions for the 21st to illustrate the conditions prevailing at this time:—

Province or Division.	Variation from normal of		
	Mean maximum temperature, 21st November.	Mean minimum temperature, 21st November.	Mean daily temperature, 21st November.
	°	°	°
Burma	+0·5	—1·6	—0·6
Assam	—0·9	—3·0	—2·0
Bengal	—0·5	—2·3	—1·4
Orissa	+0·8	—0·6	+0·1
Bihar	—0·5	—0·2	—0·4
Chota Nagpur	+0·9	—1·0	—0·1
United Provinces of Agra and Oudh	+0·8	—1·2	—0·2
North-West Frontier Province and Punjab	+1·1	+1·3	+1·2
Sind	+1·7	+5·4	+3·6
Rajputana	+1·7	+1·8	+1·8
Gujarat	+2·0	+3·7	+2·9
Central India	+0·5	—0·1	+0·2
Central Provinces	+0·6	—0·8	—0·1
Berar	—0·7	+4·0	+1·7
West Coast	0	+4·7	+2·4
Bombay Deccan	—1·9	+8·7	+3·4
Mysore	—0·6	+2·5	+1·0
Madras Coast	—0·7	+3·7	+1·5
Madras Deccan	+0·2	+4·9	+2·6
South India	—4·0	+1·1	—1·5

The hottest area included the Bombay Deccan, the west Satpuras, Sind, and Gujarat where the excess was mainly attributable to the night temperatures. The following gives data for those stations at which the night temperature was more than 7°·0 above the normal during these three days :—

Date.	Station.	Minimum temperature.		
		Actual of date.	Normal of date.	Variation of actual from normal of date.
19th November	Ahmednagar	66·4	54·7	+11·7
	Bijapur	68·3	59·6	+ 8·7
	Sholapur	69·5	61·2	+ 8·3
	Hyderabad (Deccan).	68·2	61·1	+ 7·1
20th "	Ahmednagar	65·9	54·4	+11·5
	Poona	69·4	58·0	+11·4
	Bijapur	69·8	59·4	+10·4
	Sholapur	70·0	61·0	+ 9·0
	Hyderabad (Deccan.)	68·2	60·9	+ 7·3
21st "	Bijapur	70·8	59·1	+11·7
	Sholapur	70·5	60·8	+ 9·7
	Malegaon	65·1	55·5	+ 9·6
	Deesa	65·5	56·6	+ 8·9
	Poona	65·9	57·6	+ 8·3
	Hyderabad (Deccan.)	68·2	60·7	+ 7·5

From the 23rd to the close of the month the general conditions of temperature over India were fairly steady and constant. During this period very little rain fell except in the south of the Peninsula where showers were received occasionally and temperature was steadily high over north-west India, the west coast of the Peninsula, the south of the Peninsula and Tenasserim, while it was more or less below the normal over the remainder of the country. The following gives comparative temperature data for each alternate day from the 23rd to the 29th to illustrate this condition :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	23rd November.	25th November.	27th November.	29th November.
	°	°	°	°
Burma	—1·1	—0·4	+0·6	+1·2
Assam	—3·0	—2·8	—1·5	—0·6
Bengal	—2·2	—1·7	+0·2	+1·1
Orissa	—4·1	—3·1	—1·2	—0·2
Bihar	—2·1	—0·1	+0·9	+1·3
Chota Nagpur	—1·9	—1·6	—0·4	+0·7
United Provinces of Agra and Oudh	—1·3	+0·5	+0·9	+0·6
N.-W. Frontier Province and Punjab	+3·7	+1·9	+1·3	—2·0
Sind	+4·0	+3·7	+5·2	+4·0
Rajputana	+2·2	+2·9	+2·2	+0·3
Gujarat	+1·7	+0·2	+1·1	—0·2
Central India	—1·3	+0·3	—1·5	—0·8
Central Provinces	—2·7	—1·8	—1·7	—0·9
Berar	—2·5	—1·8	—1·1	—0·4
West Coast	+2·9	+0·1	+1·4	+1·9
Bombay Deccan	—1·6	—5·0	—3·0	—0·9
Mysore	+1·0	—3·0	+2·4	+0·9
Madras Coast	+0·2	—1·6	—1·2	+0·8
Madras Deccan	—0·9	—4·5	—1·3	+1·4
South India	—1·8	+0·1	—0·5	+0·8

A light fall of rain and snow occurred over Afghanistan, Kashmir and the north Punjab on the 23rd, and on the 24th there occurred a temporary but considerable fall of temperature at some of the extreme northern stations. The following gives mean variation data for the 23rd, 24th and 25th showing the extent of this change :—

Hill or Plain Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	23rd November.	24th November.	25th November.
	°	°	°
Rawalpindi	+4·6	—1·1	—0·3
Murree	+3·1	—8·4	—1·3
Srinagar	+3·9	—1·9	—0·9
Cherat	+1·8	—5·9	—4·0
Peshawar	+9·3	—3·1	+1·2
Khushab	+7·0	+4·3	+0·9
Dera Ismail Khan	+7·2	—0·8	+3·1

At Kabul the maximum temperature on the 23rd was 52°·0 or 12°·9 below the normal, and on the 24th was 44°·2 or 20°·4 below the normal.

In northern India the fall of temperature was attributable entirely to the depression of the day temperature, the minimum or night temperature having been generally excessive. This is shown in the following table which

gives comparative data of the day and night temperatures for the 24th :—

Hill or plain Station.	Variation from normal of	
	Maximum temperature, 24th November.	Minimum temperature, 24th November.
Rawalpindi	−9·2	+7·1
Murree	−8·4	−8·4
Srinagar	−8·2	+4·5
Cherat	−8·6	−3·1
Peshawar	−11·0	+4·9
Khushab	−4·0	+12·6
Dera Ismail Khan	−7·5	+5·9

On the whole the temperature conditions were unusually stable over India during the month of November. The weather throughout the month was fairly fine and on the whole warmer than usual over Persia, Baluchistan and the hill country around the north-west Frontier, and there were no cold waves such as occasionally originate in these regions and advance eastward into north-west India. In consequence north-west India experienced higher temperatures than usual with a few exceptions throughout the month. The west and south of the Peninsula, the south of the Bay and Tenasserim also experienced higher temperatures than the average on most days, while, on the other hand, in upper Burma, Assam, and north-east India, the mean temperature was almost constantly lower than usual, and these low temperatures were apparently transferred westward and south-westward across the central parts of India as far as the Bombay Deccan.

Winds.

As mentioned in the Pressure section, the barometric gradient over the Indian land area and the Indian seas was somewhat greater than the normal, yet the air movement over India on the mean of the month was generally less than usual.

The wind's direction was about normal at Port Blair, but was less easterly than usual at Rangoon, Diamond Island and Akyab. This is shown below:—

Station.	Mean wind direction.		
	Actual, November 1902.	Normal, November.	Easterly deflection.
	°	°	
Port Blair	N 87 E	N 81 E	+ 6
Rangoon	N 40 E	N 63 E	−23
Diamond Island	N 49 E	N 60 E	−11
Akyab	N	N 3 E	− 3

The strength of the wind was less than usual at Port Blair and Rangoon, but more than usual at Diamond Island and Akyab. The following gives data :—

Station.	Mean wind velocity in miles per diem		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Port Blair	133	165	−32
Rangoon	45	97	−52
Diamond Island	296	222	+74
Akyab	60	55	+ 5

Around the Bengal and Orissa coasts the winds varied slightly and irregularly from the normal direction, but except at Chittagong, both the steadiness and the velocity were less than usual. Comparative data are given below :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, November 1902.	Normal percentage, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
				°	°			
Chittagong	67	48	+19	N 3 E	N 19 W	66	63	+ 3
Calcutta	52	59	− 7	N 15 W	N 14 W	59	62	− 3
Saugor Island	55	60	− 5	N 11 W	N 3 E	151	167	−16
False Point	55	59	− 4	N 29 E	N 27 E	114	153	−39

The winds were slightly above their normal strength and were steadier than usual in the east of the United Provinces, while they were very unsteady and very light in Bihar and about normal in Chota Nagpur. The following gives data :—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, November 1902.	Normal percentage, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Allahabad	40	23	+17	56	49	+ 7
Darbhanga	10	40	−30	17	41	−24
Hazaribagh	55	45	+10	101	110	− 9

The wind was unusually southerly in the west of the United Provinces, but blew from about the normal directions over the Punjab. The following gives data:—

STATION.	MEAN WIND DIRECTION.	
	Actual, November 1902.	Normal, November.
	°	°
Dehra Dun	S 70 W	S 89 W
Roorkee	S 76 E	N 88 W
Meerut	N 71 W	N 57 W
Ludhiana	N 74 W	N 45 W
Lahore	N 32 W	N 45 W

The variations in the steadiness and velocity were unimportant. In the Indus Valley the wind varied irregularly from the normal. At Peshawar it was more northerly, and at Jacobabad and Kurrachee more easterly than the average. This is shown below:—

STATION.	MEAN WIND DIRECTION.	
	Actual, November 1902.	Normal, November.
	°	°
Peshawar	N 58 E	N 76 E
Jacobabad	N 49 E	N 13 W
Kurrachee	S 39 E	N 85 W

The wind was lighter than usual over Rajputana. It blew from the normal direction in southern Rajputana but was unusually westerly in eastern Rajputana. The following gives comparative data of direction and velocity:—

STATION.	MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, November 1902.	Normal, November.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	°	°			
Jaipur	N 61 W	N 19 W	44	66	—22
Dessa	N 66 E	N 61 E	118	181	—63

The following gives comparative data of the strength and steadiness of the winds over the Bay, Burma and northern India:—

PROVINCE OR DIVISION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, November 1902.	Normal percentage, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Bay Islands	45	44	+ 1	133	165	—32
Burma	55	49	+ 6	134	125	+ 9
Bengal	58	56	+ 2	92	97	— 5
Bihar	10	40	—30	17	41	—24
Chota Nagpur	55	45	+10	101	110	— 9
Orissa	55	59	— 4	114	153	—39
United Provinces	32	21	+11	31	35	— 4
North-Western Frontier Province and Punjab.	36	21	+15	31	35	— 4
Rajputana	40	42	— 2	81	124	—43
Sind	9	15	— 6	69	112	—43

Over the Deccan the north-east winds were generally lighter than usual, while the average direction of the winds was generally more easterly than the average. The following gives data of direction and velocity:—

STATION.	MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, November 1902.	Normal, November.	Easterly deflection.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	°	°				
Belgaum	N 84 E	N 76 E	+ 8	242	267	—25
Sholapur	N 86 E	N 77 E	+ 9	247	199	+48
Akola	N 84 E	N 61 E	+23	49	85	—36
Buldana	N 81 E	N 64 E	+17	96	122	—26
Khandwa	N 85 E	N 58 E	+27	75	64	+11
Nagpur	N 38 E	N 54 E	—16	84	95	—11
Hyderabad (Deccan)	S 81 E	S 72 E	+ 9	73	88	—15

Along the west coast the wind was practically normal though the steadiness was somewhat less than usual. This is shown below:—

STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, November 1902.	Normal percentage, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
				°	°			
Bombay . . .	42	52	—10	N 14 E	N 18 E	226	235	— 9
Karwar . . .	30	46	—16	N 27 W	N 31 W	76	60	+16

In south India, as in the Deccan, the wind was unusually easterly on the mean of the month. This is shown below:—

STATION.	MEAN WIND DIRECTION.		
	Actual, November 1902.	Normal, November.	Easterly deflection.
	°	°	
Salem	N 78 E	N 87 E	— 9
Bangalore	N 73 E	N 61 E	+12
Mysore	N 83 E	N 78 E	+ 5
Hassan	N 75 E	N 71 E	+ 4
Chitaldroog	N 88 E	N 74 E	+14
Madras	N 24 E	N 24 E	0
Bellary	N 88 E	N 81 E	+ 7

The wind's velocity in this region was generally below the normal, while, on the contrary, the steadiness was everywhere greater than usual. The following gives data:—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, percentage November 1902.	Normal, percentage, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Salem . . .	50	24	+26	61	74	—13
Bangalore . . .	84	64	+20	176	108	+68
Mysore . . .	78	72	+ 6	201	219	—18
Hassan . . .	89	77	+12	70	86	—16
Chitaldroog . . .	80	72	+ 8	137	160	—23
Madras . . .	73	64	+ 9	166	156	+10
Bellary . . .	67	55	+12	69	77	— 8

The following gives comparative data of the str ength and steadiness of the winds over the Peninsula:—

PROVINCE OR DIVISION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, November 1902.	Normal percentage, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Central Provinces . .	75	56	+19	80	80	0
Berar	54	51	+ 3	73	104	—31
Bombay Deccan . .	77	65	+12	245	233	+12
Madras Deccan . .	50	61	—11	71	83	—12
West Coast . . .	36	49	—13	151	148	+ 3
Mysore . . .	83	71	+12	146	143	+ 3
Madras Coast . .	73	64	+ 9	166	156	+10
South India . .	50	24	+26	61	74	—13

The preceding discussion has shown that the winds, on the mean of the month, were generally lighter and more unsteady than usual. The marine data show that this condition was, to a slight extent, noticeable over the Bay of Bengal where, according to the wind observations recorded on board vessels traversing the Bay of Bengal, the winds were lighter than usual. The following gives comparative data for the Arabian Sea and the Bay of Bengal:—

AREA.	MEAN WIND FORCE IN MILES.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Arabian Sea	3·2	2·9	+0·3
Bay of Bengal	3·1	3·2	—0·1

Light and unsteady winds were also reported as far south as the Seychelles and Zanzibar at both of which

stations the velocity and steadiness were low. The following gives data :—

STATION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, November 1902.	Normal percentage, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Zanzibar . . .	23	29	— 6	102	115	—13
Seychelles . . .	22	30	— 8	107	140	—33

At Zanzibar the wind was more easterly than usual, while at the Seychelles the wind, instead of blowing from S 70° E, blew from N 7° E. This is shown below :—

STATION.	MEAN WIND DIRECTION.	
	Actual, November 1902.	Normal, November.
	°	°
Zanzibar	S 50 E	S 31 E
Seychelles	N 7 E	S 70 E

In Baluchistan the wind, on the mean of the month, was north-westerly, while at the hill stations in northern India, the directions were very variable. The steadiness of the wind was, however, on the whole greater than usual. The following gives data :—

HILL STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.	
	Actual percentage, November 1902.	Normal percentage, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.
				°	°
Quetta	20	40	—20	N 58 W	N 51 W
Leh	65	34	+31	S 43 W	S 21 W
Srinagar	33	18	+15	N 39 W	N 16 E
Kailang	68	61	+ 7	S 62 W	S 52 W
Simla	7	18	—11	S	S 12 W
Chakrata . . .	51	30	+21	S 25 E	S 61 W
Ranikhet . . .	48	35	+13	S 81 W	S 53 W
Katmandu . . .	43	45	— 2	S 82 W	N 80 W
Darjeeling . . .	22	12	+10	N 39 W	N 79 W

The principal variations from the normal for the month were hence the general diminished velocity of the winds over the Indian land area and the increased easting in the wind's direction over the Peninsula.

Humidity and Cloud.

In the month of November 1902 the air was drier than usual within a broad band extending eastward from the west coast of the Peninsula, Gujarat and Sind, through Rajputana and the central parts of India to north-east India and Burma. Over the whole of this large area the relative humidity was lower than usual. At most places the deficiency in the relative humidity was slight or small, but in three areas, *viz.*, (1) over the Bombay coast, (2) over Rajputana and the east Punjab and (3) over the Burma coast and the head of the Bay the deficiency amounted to 5 or more. The following gives comparative data for the stations within these three areas :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	"	"	"	%	%	
Bombay . .	·683	·694	—·011	64	70	—6
Mount Abu . .	·217	·244	—·027	34	39	—5

DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	"	"	"	%	%	
Jaipur . . .	·288	·297	—·009	38	43	—5
Ludhiana . .	·290	·313	—·023	48	53	—5
Diamond Island .	·759	·791	—·032	71	78	—7
Rangoon . .	·745	·782	—·037	72	78	—6
Saugor Island .	·598	·637	—·039	70	75	—5

At all these stations the amount of aqueous vapour present in the air was in defect of the normal, while the mean temperature was in excess, so that the relative humidity was in considerable defect.

To the north of the band of unusual dryness, *i.e.*, over upper Sind, Baluchistan, the west Punjab and along the

foot of the Himalayas, the relative humidity, on the mean of the month, was in excess of the normal. The excess was generally small but was more than 5 at the two stations for which comparative data are given below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	"	"	"	%	%	
Jacobabad . .	·427	·298	+·129	55	44	+11
Quetta . . .	·200	·151	+·049	55	47	+ 8

It will be noticed that at both these stations the absolute humidity of the air was in large excess, so that the relative humidity was in excess notwithstanding the high temperature which prevailed at both places.

The relative humidity was also in excess over the south of the Bay, the southern half of the Peninsula and the whole of the Deccan. Within this area also the variations of the relative humidity from the normal were generally slight or small, but equalled or exceeded 5 per cent. at Salem, Mysore, Belgaum, Khandwa and Pachmarhi. The following gives comparative data for these five stations:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	"	"	"	%	%	
Belgaum . . .	·516	·464	+·052	67	59	+8
Khandwa . . .	·421	·369	+·052	56	49	+7
Pachmarhi . . .	·338	·313	+·025	61	55	+6
Mysore . . .	·592	·570	+·022	73	68	+5
Salem . . .	·756	·660	+·096	80	75	+5

At all these stations the absolute humidity was higher than usual and at all except Belgaum the mean temperature was also in excess.

The following gives comparative data of mean temperature and of the absolute and relative humidities for the various divisions of India and for Burma and the Bay Islands:—

DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.			Mean temperature variation, November 1902.
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.	
	"	"	"	%	%		°
Bay Islands . .	·915	·923	—·008	83	82	+1	+0·5
Burma . . .	·752	·787	—·035	72	79	—7	+0·6
Bengal . . .	·590	·635	—·045	72	76	—4	—0·5
Bihar . . .	·541	·534	+·007	71	70	+1	—1·1
Chota Nagpur . .	·336	·360	—·024	49	54	—5	+0·4
Orissa . . .	·594	·628	—·034	72	74	—2	—1·1
United Provinces .	·357	·359	—·002	59	59	0	—0·7
Punjab and North-West Frontier Province.	·318	·300	+·018	53	52	+1	+2·1
Sind . . .	·479	·374	+·105	55	49	+6	+3·7
Rajputana . .	·282	·289	—·007	35	39	—4	+1·7
Central Provinces .	·413	·400	+·013	54	52	+2	+0·5
Bombay Deccan .	·490	·462	+·028	61	56	+5	—0·4
Berar . . .	·411	·403	+·008	53	51	+2	—0·4
Madras Deccan .	·561	·536	+·025	67	64	+3	—0·1
Mysore . . .	·573	·533	+·040	74	70	+4	+0·6
West Coast . .	·703	·700	+·003	68	72	—4	+1·8
Madras Coast . .	·816	·771	+·045	83	81	+2	+0·4
South India . .	·756	·660	+·096	80	75	+5	+0·5

At the hill stations the humidity variations were irregular. At Leh the air was drier than usual and the temperature above the normal, so that the relative humidity was in considerable defect (—8), while, on the contrary, at Kailang the absolute humidity was above the normal and the mean temperature below, so that the relative humidity was in large excess (+12). At Simla, Srinagar, Chakrata, Ranikhet, and Katmandu the variations from the normal were small and unimportant, but at Darjeeling the absolute humidity was lower than usual and the mean temperature higher so that the relative humidity was in large defect (—7).

The air was more humid than usual both at Perim and Aden and at the former station the relative humidity was in excess. At Zanzibar and the Seychelles both the

absolute and relative humidities were in excess. The following gives data for these stations :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	"	"	"	%	%	
Perim	·769	·672	+·097	69	62	+7
Aden	·695	·653	+·042	66	66	0
Zanzibar	·870	·819	+·051	82	81	+1
Seychelles	·847	·819	+·028	84	82	+2

The relative humidity was absolutely lowest over Rajputana and Gujarat and was less than 40 % at the three stations, for which comparative data are given below :—

STATION.	RELATIVE HUMIDITY.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
	%	%	
Deesa	32	34	−2
Mount Abu	34	39	−5
Jaipur	38	43	−5

The variations in the cloud amount of the month corresponded closely with those of humidity.

The cloud amount, on the mean of the month, was less than usual within a broad band extending eastward from the west coast, Gujarat and lower Sind, through Rajputana and the central parts of the country to north-east India and Burma. At most stations within this broad band the serenity was only slightly greater than usual, but within two areas, *viz.*, (1) Gujarat and south Rajputana and (2) the Burma coast and the head of the Bay, the mean cloud amount was more than 1·0 below the normal. These two areas of maximum serenity agreed closely with the areas of maximum defect in humidity. The following gives comparative data for the stations within these two areas :—

AREA.	STATION.	MEAN CLOUD AMOUNT.		
		Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
FIRST AREA	Deesa	0·2	1·5	−1·3
	Mount Abu	0·4	1·5	−1·1
SECOND AREA	Akyab	1·3	3·2	−1·9
	Chittagong	1·6	2·9	−1·3
	Diamond Island	3·3	4·5	−1·2
	Calcutta	1·4	2·5	−1.1

To the north and south of this band of diminished cloud amount the skies were more covered than usual in November. In upper Sind, Baluchistan and the Punjab the excess was generally small, but over the North-West Frontier Province and over the north-west Himalayas the excess was considerable. The following gives comparative data for Peshawar and Srinagar :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Peshawar	3·5	2·3	+1·2
Srinagar	4·3	3·2	+1·1

To the south of the band, *i.e.*, over the southern half of the Peninsula and the Deccan the excess in the cloud amount was larger and more marked than in the northern districts. It exceeded 1·0 at the following stations and was more than 2·0 at Mysore and Salem. The following gives comparative data :—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Mysore	8·8	6·5	+2·3
Salem	7·4	5·2	+2·2
Hyderabad (Deccan)	5·1	3·2	+1·9
Chitaldroog	6·4	4·7	+1·7
Belgaum	5·0	3·4	+1·6
Sholapur	4·7	3·6	+1·1
Hassan	7·5	6·4	+1·1

Cloud was in slight excess at some of the western and in slight to moderate defect at the central and eastern Himalayan stations. This is shown below :—

Hill Station.	Mean cloud amount.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Srinagar	4·3	3·2	+1·1
Chakrata	2·4	1·7	+0·7
Kailang	4·1	3·7	+0·4
Simla	2·5	2·3	+0·2
Katmandu	1·1	2·5	−1·4
Mount Abu	0·4	1·5	−1·1
Leh	3·5	4·1	−0·6
Pachmarhi	1·7	2·1	−0·4
Chikalda	2·0	2·4	−0·4
Darjeeling	4·1	4·4	−0·3
Ranikhet	1·2	1·5	−0·3

Skies were practically clear of cloud, *i.e.*, the mean daily cloud amount was less than 1·0 at the following stations :—

Station.	Mean cloud amount.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Allahabad	0·9	1·2	−0·3
Roorkee	0·9	1·0	−0·1
Meerut	0·8	0·8	•
Jamnagar	0·7		
Kurrachee	0·5	1·2	−0·7
Udaipur	0·5		
Mount Abu	0·4	1·5	−1·1
Darbhanga	0·2	0·8	−0·6
Deesa	0·2	1·5	−1·3

Skies were,on the other hand, very cloudy (the mean daily cloud amount having been more than 7·0) at the stations for which comparative data are given below :—

Station.	Mean cloud amount.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Mysore	8·8	6·5	+2·3
Hassan	7·5	6·4	+1·1
Salem	7·4	5·2	+2·2
Kodaikanal	7·2		
Periyakulam	7·1		

In the south-east Trades region the mean cloud amount was considerable and at Zanzibar was greater than usual. This is shown below :—

Station.	Mean cloud amount.		
	Actual, November 1902.	Normal, November.	Variation of actual from normal, November 1902.
Zanzibar	7·3	5·7	+1·6
Seychelles	6·9	6·9	0

Rainfall.

The rainfall distribution, relatively to the normal, in November 1902 differed in some important respects from that of October 1902. In the latter month there occurred a considerable to moderate excess of rain over Baluchistan, the Punjab and the frontier hill districts while during the month under review the whole of this area had much less rain than usual. Over the Central Provinces October was a wetter, while November was a drier, month than usual. Both months were, however, alike in showing a general excess of rain over the Peninsula and a general defect of rain over north-east India, Assam and Burma.

The actual distribution of rain, as indicated by the meteorological stations, is shown in Plate IV. This chart shows that light to moderate rain was received during the month over Baluchistan and the north-west and north mountainous regions, but that all over the plains of north-west and northern India, including the Bombay coast, Gujarat, Sind, Rajputana, the Punjab, the North-West Frontier Province, the United Provinces, the greater part of lower Bengal and a large part of inland Burma, the monthwas practically rainless. The rainfall was also very light over Orissa, the Central Provinces and the Madras Deccan. From

these areas the amount of the rainfall increased and exceeded 4″ over the Bombay Deccan, 7″ at Minicoy; 20″ at Negapatam and over Ceylon and 14″ at Port Blair.

The chief features of the rainfall of the month of November 1902 were as follows:—

(1) The rainfall of the month was in excess in several of the Peninsular divisions.

(2) It was in excess over Berar and the west and centre of the Central Provinces.

(3) It was lighter than usual over practically the whole of the remainder of India.

The chief periods of rainfall were as follows:—

(1) From the 1st to the 4th when diminishing showers were received over the Peninsula and the central parts of the country.

(2) The 6th to the 10th when showers were received over the Peninsula, principally along the Madras coast.

(3) The 11th to 13th when showers were received over the north-west Himalayas.

(4) The 13th to the 22nd when rain fell over the south of the Peninsula.

(5) The 24th when rain occurred over the north Punjab and snow over the north-west Himalayas, and

(6) The 27th to the 29th when showers were received over the south-east of the Peninsula.

The following table gives mean actual, mean normal and variation data for the 56 meteorological divisions into which India is divided:—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, November 1902.	Average normal, November.	Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.
				Inches.	Inches.	Inches.
Burma	Tenasserim	1·5	3·4	0·59	2·04	−1·45
	Lower Burma (Deltaic)	1·2	2·5	0·59	1·68	−1·09
	Central do	0·5	1·6	0·24	1·06	−0·82
	Upper do	0·6	2·2	0·20	1·25	−1·05
	Arakan	0·3	2·2	0·19	1·52	−1·33
Bengal and Assam	Eastern Bengal	0·2	1·2	0·05	1·02	−0·97
	Assam (Surma)	0·9	1·6	0·31	1·30	−0·99
	Do. (Hills)	0·8	1·9	0·27	1·05	−0·78
	Do. (Brahmaputra)	1·3	1·1	0·48	0·47	+0·01
	Deltaic Bengal	0·8	0·9	0·49	0·75	−0·26
	Central do.	0·4	0·6	0·17	0·41	−0·24
	North do.	0·2	0·4	0·08	0·18	−0·10
	Bengal Hills	1·0	0·8	0·34	0·29	+0·05
	Orissa	0·4	1·6	0·22	1·47	−1·25
	Chota Nagpur	0·6	0·6	0·31	0·37	−0·06
	Bihar (South)	0·2	0·3	0·07	0·21	−0·14
	Do. (North)	0	0·2	0	0·11	−0·11
United Provinces of Agra and Oudh.	United Provinces (East)	0·5	0·3	0·12	0·17	−0·05
	Oudh (South)	0	0·2	0	0·13	−0·13
	Do. (North)	0	0·2	0	0·12	−0·12
	United Provinces (Central)	0·2	0·2	0·06	0·15	−0·09
	Do. do. (West)	0	0·1	0	0·06	−0·06
	Do. do. (East Submontane)	0	0·2	0·01	0·10	−0·09
	Do. do. (West do.)	0	0·3	0	0·17	−0·17
	Do. do. (Hills)	0·2	0·6	0·07	0·26	−0·19
Punjab and North-West Frontier Province.	Punjab (South-East)	0·6	0·8	0·25	0·58	−0·33
	Do. (South)	0	0·1	0	0·07	−0·07
	Do. (Central)	0	0·2	0	0·10	−0·10
	Do. (Submontane)	0	0·3	0·01	0·14	−0·13
	Do. (Hills)	0·5	0·7	0·17	0·45	−0·28
	Do. (North)	0·6	0·8	0·25	0·58	−0·33
	Do. (West)	0	0·2	0	0·13	−0·13
Bombay and Malabar Coast Districts (Madras).	Malabar	6·1	5·1	4·42	3·58	+0·84
	Travancore	11·0	...	7·99	...	...
	Madras (South Central)	7·1	5·7	3·41	3·77	−0·36
	Coorg	5·2	...	2·99	...	...
	Mysore	3·3	3·8	1·70	2·56	−0·86
	Konkan	2·2	1·4	1·28	0·87	+0·41
	Bombay Deccan	2·8	1·8	1·61	1·16	+0·45
	Hyderabad North	...	...	...	...	...
	Khandesh	2·6	0·8	1·34	0·48	+0·86
Central Provinces and Berar.	Berar	1·8	0·9	0·92	0·57	+0·35
	Central Provinces (West)	2·1	0·7	1·06	0·42	+0·64
	Do. (Central)	1·3	0·7	1·25	0·40	+0·85
	Do. (East)	0·3	0·8	0·10	0·49	−0·39

Province.	Division.	Number of rainy days. Average actual, November 1902.	Number of rainy days. Average normal, November.	Rainfall. Average actual, November 1902.	Rainfall. Average normal, November.	Rainfall. Variation of actual from normal, November 1902.
				Inches	Inches.	Inches.
Bombay (North)	Gujarat	0·2	0·5	0·07	0·18	−0·11
	Kathiawar and Cutch	0	0·4	0	0·33	−0·33
	Sind	0	0·2	0	0·09	−0·09
	Baluchistan Hills	0·8	1·3	0·22	0·52	−0·30
Rajputana and Central India.	Central India (East)	0·4	0·4	0·25	0·23	+0·02
	Rajputana (East), Central India (West)	0	0·3	0	0·19	−0·19
	Rajputana (West)	0	0·3	0	0·19	−0·19
Madras	East Coast (North)	2·7	2·9	1·66	2·71	−1·05
	Hyderabad (South)	...	...	...	...	...
	Madras (Central)	2·5	3·3	1·26	2·16	−0·90
	East Coast (Central)	9·5	6·9	10·53	8·12	+2·41
	Do. (South)	12·0	9·1	9·12	9·20	−0·08
	Madras (South)	12·0	8·0	9·68	6·27	+3·41

The above shows that out of the 56 divisions only 12 received more rain than the normal. These were the Brahmaputra Valley (+0·01″), the Bengal Hills (+0·05″), Malabar (+0·84″), the Konkan (+0·41″), the Bombay Deccan (+0·45″), Khandesh (+0·86″), Berar (+0·35″), the west of the Central Provinces (+0·64″), the centre of the Central Provinces (+0·85″), the east of Central India (+0·02″), the centre of the east coast (+2·41″) and the south of Madras (+3·41″). The remaining 44 divisions received less rain than usual, and in the case of north Bengal, south Bihar, north Bihar, south Oudh, north Oudh, the whole of the United Provinces (except the east), the south, central, submontane and west Punjab, Gujarat, Kathiawar, Sind, Rajputana and the west of Central India, the month's rainfall was actually or practically *nil*.

From the fifth column of the above table it would appear that the general rainfall of the whole Indian region was 0·14 inch below the normal on the average of all divisions.

Occasional showers were received over Burma between the 1st and the 11th—mainly confined to upper Burma on the 3rd, 4th and 6th—but thereafter the rainfall ceased, and except for showers in Tenasserim on the 18th, 19th and 22nd there was no important rainfall in this province after the 11th. In consequence the total rainfall of this region was in large defect, as is shown by the following comparative data for the seventeen districts of upper Burma:—

District.	Rainfall. Average actual, November 1902.	Rainfall. Average normal, November.	Rainfall. Variation of actual from normal, November 1902.	Rainfall. Percentage variation from normal.
	Inch.	Inches.	Inches.	
Yamethin	0·41	1·28	−0·87	−68
Meiktila	0·08	1·79	−1·71	−96
Magwe	0·17	0·97	−0·80	−82
Minbu	0	0·91	−0·91	−100
Pakokku	0	1·13	−1·13	−100
Myingyan	0·22	0·92	−0·70	−76
Lower Chindwin	0·07	1·18	−1·11	−94
Upper Chindwin	0·24	1·18	−0·94	−80
Chin Hills	0	1·19	−1·19	−100
Kyaukse	0·41	1·78	−1·37	−77
Sagaing	0·05	1·50	−1·45	−97
Mandalay	0·40	1·68	−1·28	−76
Ruby Mines	0·51	1·74	−1·23	−71
Shwebo	0·11	0·97	−0·86	−89
Katha	0·52	1·09	−0·57	−52
Bhamo	0·03	1·00	−0·97	−97
Myitkyina	0·19	0·82	−0·63	−77

Assam received only light occasional showers during the month. In the Surma Valley the showers fell on the 1st, 2nd and 3rd, the remainder of the month having been rainless. In the hills the rainfall was very light and confined to the first week. Cherrapoonjee received no rain throughout the month. In the Brahmaputra Valley, there were two showery periods, the first lasting from the 2nd to the 8th, the second occurring on the 15th and 16th. The showers were not heavy, but the total rainfall of the month, owing to the heavy rainfall in Darrang, was in trifling excess of the normal over this division. The following gives comparative data of the month in the plains districts:—

District.	Rainfall. Average actual, November 1902.	Rainfall. Average normal, November.	Rainfall. Variation of actual from normal, November 1902.	Rainfall. Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cachar	0·41	1·56	−1·15	−74
Sylhet	0·17	1·05	−0·88	−84
Goalpara	0·06	0·20	−0·14	−70
Kamrup	0·16	0·29	−0·13	−45
Darrang	1·10	0·46	+0·64	+139
Nowgong	0·15	0·39	−0·24	−62
Sibsagar	0·59	0·65	−0·06	−9
Lakhimpur	0·46	0·68	−0·22	−32

Over Bengal there occurred a showery period during the first week of the month after which the rainfall ceased and the weather was fine until the close of the month except in north Bengal where further showers were received between the 13th and the 21st. The total rainfall of the month was in trifling excess in the Bengal hills but was in more or less considerable defect in all other divisions of the province. The following gives data for each division of the province:—

Division.	Rainfall. Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inch.	Inches.	Inches.	
Eastern Bengal . .	0·05	1·02	—0·97	—95
Deltaic " . . .	0·49	0·75	—0·26	—35
Central " . . .	1·7	0·41	—0·24	—59
North " . . .	0·08	0·18	—0·10	—56
Bengal Hills . . .	0·34	0·29	+0·05	+17
Orissa	0·22	1·47	—1·25	—85
Chota Nagpur . .	0·31	0·37	—0·06	—16
South Bihar . . .	0·07	0·21	—0·14	—67
North Bihar . .	0	0·11	—0·11	—100

Light rain occurred between the 1st and the 3rd in the Ghazipur, Benares, Jaunpur, Ballia, Mirzapur, Allahabad, Banda, Fatehpur, Hamirpur and Jhansi districts of the United Provinces, and between the 13th and 20th in the Dehra Dun, Almora and Garhwal districts, but at other times and in all the remaining districts the weather was rainless. The total rainfall of the month was hence actually or practically *nil* over the greater part of the United Provinces. The following gives comparative data for each district in which rain was recorded:—

District.	Rainfall. Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Ghazipur . . .	0·10	0·27	—0·17	—63
Benares	0·03	0·20	—0·17	—85
Jaunpur . . .	0·02	0·09	—0·07	—78
Mirzapur . . .	0·32	0·25	+0·07	+28
Allahabad . .	0·08	0·12	—0·04	—33
Banda	0·18	0·23	—0·05	—22
Fatehpur . . .	0·02	0·17	—0·15	—88
Hamirpur . . .	0·08	0·25	—0·17	—68
Jhansi	0·19	0·14	+0·05	+36
Dehra Dun . . .	0·02	0·33	—0·31	—94
Almora	0·09	0·33	—0·24	—73
Garhwal . . .	0·09	0·29	—0·20	—69
Ballia	0·04	0·19	—0·15	—79

Over the Punjab the only showers reported occurred as follows:—In the Gurdaspur district on the 13th and 14th; in the Kangra district between the 13th and 16th; in the Gujrat district on the 12th; in the Jhelum district on the 11th and 12th; in the Rawalpindi district on the 1st, 12th and 24th; and in the Shahpur district on the 11th. The showers were nowhere heavy and the average actual rainfall, which averaged from *nil* to one quarter of an inch, was everywhere less than usual. This is shown in the following comparative statement for the different districts which recorded rain during the month:—

District.	Rainfall. Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Gurdaspur . . .	0·03	0·20	—0·17	—85
Kangra	0·26	0·46	—0·20	—43
Gujrat	0·01	0·19	—0·18	—95
Jhelum	0·05	0·28	—0·23	—82
Rawalpindi . . .	0·22	0·65	—0·43	—66
Shahpur	0·02	0·20	—0·18	—90

There was light rain in the Peshawar district of the North-West Frontier Province on the 24th, in the Hazara district on the 12th and 24th, and in the Kohat district on the 13th. As in other parts of north-west India the total rainfall of the month was generally below the average, as is shown by the following comparative data for the different districts:—

District.	Rainfall. Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Peshawar . . .	0·03	0·58	—0·55	— 95
Hazara	0·38	0·79	—0·41	— 51
Kohat	0·63	0·57	+ 0·06	+ 11
Bannu	0	0·23	—0·23	—100
D. I. Khan . . .	0	0·10	—0·10	—100

In Baluchistan showers occurred between the 17th and 21st and again on the 27th and 28th. The falls were nowhere heavy, and the total rainfall of the month was less than half the normal. Kashmir reported two showery

periods—the first lasting from the 11th to the 15th, the second from the 21st to the 24th. The rainfall and snowfall were heavier in this area than in Baluchistan and the following falls exceeding 1″ in 24 hours were recorded :—

DISTRICT.	STATION.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
JUMMOO	Kishtwar	11th November	2·44
	Ramban	,, ,,	1·05
KASHMIR	Sonemarg	12th ,,	2·50
JUMMOO	Pader	,, ,,	1·85
KASHMIR	Baramula	,, ,,	1·23
	Sonemarg	13th ,,	1·46
JUMMOO	Kishtwar	,, ,,	1·45
	Punch	,, ,,	1·09
	Pader	14th ,,	1·37
KASHMIR	Anantnag	,, ,,	1·02
	Utarmachhipore	21st ,,	1·03
	Uri	23rd ,,	1·12

The total rainfall of the month was, so far as can be ascertained, heavier than usual.

Over Rajputana there was no rain throughout the month, but in Central India there were showers between the 1st and 3rd in Indore, Rutlam, Gwalior, Nagode, Maihar and Rewah. After the 3rd the weather was rainless.

Berar received showers between the 1st and the 7th and again on the 20th and 21st. During the first showery period the rainfall amounts were generally small but during the second the falls were heavier and amounts exceeding 1″ in 24 hours were recorded at the following stations:—

DATE.	STATION.	Rainfall during 24 hours preceding 8 A.M. of 20th November 1902.
		Inches.
BASIM	Sirpur	2·16
	Basim C. S.	2·10
BULDANA	Deulgaon Raja	1·62
BASIM	Risod	1·31
BULDANA	Mehkar	1·30
BASIM	Umerkheir	1·30
BULDANA	Donigaon	1·09

The total rainfall of the month was slightly to considerably heavier than usual in most districts, as is shown by the following comparative data for the different districts :—

DISTRICT.	RAINFALL.			
	Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Amraoti	0·60	0·59	+0·01	+ 2
Ellichpur	0·70	0·56	+0·14	+ 25
Akola	0·35	0·44	−0·09	− 20
Buldana	1·58	0·48	+1·10	+ 23
Wun	0·76	0·67	+0·09	+ 13
Basim	1·71	0·75	+0·96	+128

In the Central Provinces there was rain between the 1st and the 5th, but after the latter date the month was rainless. The rainfall was heavy on the 1st in the Saugor, Damoh, Jubbulpore and Hoshangabad districts where the following amounts exceeding 2″ in 24 hours were recorded :—

DISTRICT.	STATION.	Rainfall during 24 hours preceding 8 A.M of 1st November 1902.
		Inches.
DAMOH	Damoh	4·24
SAUGOR	Saugor	4·14
	Rehli	4·03
JUBBULPORE	Murwara	2·53
	Sihora	2·50
HOSHANGABAD	Hoshangabad	2·45
JUBBULPORE	Bijeraghogarh	2·08

The total rainfall of the month was above the normal over the western and central divisions, but was less than

usual in the eastern division. The following gives comparative data for the different districts:—

District.	Rainfall. Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Chanda	0·46	0·69	—0·23	— 33
Bhandara	0·13	0·47	—0·34	— 72
Balaghat	0·03	0·42	—0·39	— 93
Raipur	0·13	0·45	—0·32	— 69
Bilaspur	0·23	0·44	—0·21	— 48
Sambalpur	0·05	0·43	—0·38	— 88
Saugor	3·15	0·27	+2·88	+1067
Damoh	2·94	0·23	+2·71	+1178
Jubbulpore	2·35	0·30	+2·05	+ 683
Mandla	0·22	0·34	—0·12	— 35
Seoni	0·51	0·48	+0·03	+ 6
Narsinghpur	1·71	0·26	+1·45	+ 558
Hoshangabad	1·54	0·31	+1·23	+ 397
Nimar	1·40	0·22	+1·18	+ 536
Betul	1·42	0·48	+0·94	+ 196
Chhindwara	0·86	0·48	+0·38	+ 79
Wardha	0·41	0·56	—0·15	— 27
Nagpur	0·51	0·46	+0·05	+ 11

Over the southern half of the Bombay Presidency the month's rainfall was generally in excess of the normal. In the Konkan more or less daily rain was received from the 1st to the 8th or 9th, while showers fell about the 20th. The rainfall was heaviest on the 3rd when the following amounts of 2 inches or more in 24 hours were registered:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 3rd November 1902.
		Inches.
Savantvadi	Savantvadi	3·97
Ratnagiri	Vengurla	3·12
Savantvadi	Banda	2·48
Kolaba	Mangaon	2·00

The total rainfall of the month was twice as much as usual, as is shown by the following comparative data for the districts in this division:—

District.	Rainfall. Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
North Kanara	1·28	1·63	—0·35	— 21
Savantvadi	4·46	1·03	+3·43	+333
Ratnagiri	1·35	0·92	+0·43	+ 47
Kolaba	1·21	0·68	+0·53	+ 78
Thana	0·48	0·28	+0·20	+ 71

In the Karnatak the distribution of rain was similar to that in the Konkan. Showers were received from the 1st to the 8th and again on the 19th, 20th, and 21st, and the total fall of the month was in excess of the normal except in Bijapur. The following gives data for the different districts:—

District.	Rainfall. Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Dharwar	1·94	1·47	+0·47	+32
Bijapur	1·33	1·39	—0·06	—43
Belgaum	1·46	1·27	+0·19	+15

In the south Deccan the rainfall occurred under the same conditions as in the Konkan and the Karnatak, but the rainfall was heavier than in the Karnatak, the following falls exceeding 1·50″ in 24 hours having been registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Sholapur	Barsi	1st November	3·26
	Karmala	" "	1·78
Satara	Medha	4th "	1·90
Sholapur	Sangola	5th "	2·47
Poona	Sirur	" "	2·15
	Talegaon	" "	2·15
Sholapur	Akluj	19th "	4·15
	Madha	20th "	2·45

The following gives comparative data for the districts in this division :—

District.	Rainfall. Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Satara	1·24	1·00	+0·24	+ 24
Sholapur	3·48	0·93	+2·55	+274
Poona	1·63	0·81	+0·82	+101

Showers were received over the north Deccan between the 1st and the 8th and on the 19th, 20th and 21st. The total rainfall was everywhere in excess of the normal, as is shown by the following comparative data for the contained districts :—

District.	Rainfall. Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Ahmednagar	2·29	0·75	+ 1·54	+205
Nasik	1·12	0·52	+ 0·60	+115
Khandesh	0·98	0·31	+ 0·67	+216

Gujarat received a few light showers on the 1st, 3rd, 4th and 6th, but in general the whole of north Bombay including Gujarat, Kathiawar and Sind was rainless throughout the month.

In Mysore rain was fairly general between the 1st and the 3rd, while showery periods occurred between the 6th and the 10th, the 17th and the 19th and the 28th and 29th. The following falls exceeding 2″ in 24 hours were recorded during the first fall :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Chitaldroog	Molakalmuru	1st November	2·40
	Challakere	,, ,,	2·15
Kadur	Kadur	2nd ,,	2·24
Mysore	Yedatore	,, ,,	2·08
Shimoga	Sagar	3rd ,,	4·00
	Sorab	,, ,,	2·90
Kadur	Kadur	,, ,,	2·10
Mysore	Heggaddevankote	,, ,,	2·04

The month's rainfall was, however, generally less than usual, as is shown by the following data for the different districts :—

District.	Rainfall. Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Bangalore	0·66	2·53	—1·87	—74
Kolar	1·11	3·15	—2·04	—65
Tumkur	1·64	2·22	—0·58	—26
Mysore	1·55	2·75	—1·20	—44
Hassan	2·17	2·93	—0·76	—26
Shimoga	2·25	1·79	+0·46	+26
Kadur	3·04	2·61	+0·43	+16
Chitaldroog	1·68	2·41	—0·73	—20

In Coorg showery weather prevailed until the 20th when the weather cleared.

The Malabar coast district of Madras had four rainy periods during the month, *viz.*, from the 1st to the 3rd, from the 6th to the 8th, from the 11th to the 16th, and from the 19th to the 21st. On or about these dates the following falls exceeding 2·50″ in 24 hours were recorded in Travancore, Malabar and south Canara :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Travancore	Padmanabhapuram	2nd November.	3·42
Malabar	Cherpulcherry	3rd ,,	5·24
	Talipparamba	,, ,,	2·95
	Ottapalam	,, ,,	2·94
	Kuttiadi	,, ,,	2·70
	Chowghat	6th ,,	2·90
	Tirurangadi	8th ,,	3·18
Travancore	Parur	,, ,,	2·60
	Kottarakaray	11th ,,	3·42
	Thadupuzha	,, ,,	2·56
	Nagercoil	13th ,,	2·65
	Peermade	,, ,,	2·55
	Neduvengad	14th ,,	3·24
	Peermade	,, ,,	3·08
	Ambalapuzha	,, ,,	2·76
	Meenachil	15th ,,	5·48
	Padmanabhapuram	,, ,,	5·37
	Velavencode	,, ,,	5·25
Malabar	Nilambur	,, ,,	3·67
Travancore	Eraniel	,, ,,	3·26
Malabar	Mannarghat	,, ,,	2·65
	Calicut	,, ,,	2·55
	,,	16th ,,	2·52

The rainfall of the division was in excess of the normal, as is shown by the following comparative data for the two districts :—

District.	Rainfall.			
	Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inch.	
Malabar	4·94	3·95	+0·99	+25
South Canara	3·29	2·93	+0·36	+12

In south Madras more or less general rain fell between the 1st and the 11th, on the 15th, between the 18th and the 22nd, and between the 27th and 29th. During these periods the following falls exceeding 2″ were received :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tinnevelly	Virudupatti	1st November.	3·45
Madura	Tirumangalam	,, ,,	2·10
	Periyakulam	2nd ,,	2·43
Tinnevelly	Nanguneri	4th ,,	2·03
Madura	Vattanam	6th ,,	2·65
Tinnevelly	Virudupatti	,, ,,	2·41
	Srivaikuntam	7th ,,	3·36
	Sivakasi	,, ,,	3·00
Madura	Manakkudi	,, ,,	2·62
	Morekulam	8th ,,	3·16
	Ramnad	,, ,,	3·10
	Pamban	11th ,,	2·30
	Theethandathanam	14th ,,	2·48
Tinnevelly	Sattur	15th ,,	4·21
	Palamcottah	,, ,,	3·17
Madura	Madura	,, ,,	2·58
	Tiruchuli	18th ,,	2·95
	Ramnad	,, ,,	2·50
Tinnevelly	Sattur	19th ,,	3·50
Madura	Tiruvadanai	,, ,,	2·55
	Mutturaghunadapatnam.	21st ,,	3·50
Tinnevelly	Keeranur	,, ,,	3·02
Madura	Tiruppattur	,, ,,	2·60
Tinnevelly	Kayalpatnam	21st November	2·56
	Kulasekarapatnam	,, ,,	2·55
	Ditto	22nd ,,	4·50
	Keeranur	,, ,,	4·15
	Kayalpatnam	,, ,,	3·56
	Sattankulam	,, ,,	3·54
	Kuttanguli	,, ,,	3·31
Madura	Morekulam	,, ,,	3·03
	Ramnad	,, ,,	3·02
Tinnevelly	Radhapuram	,, ,,	3·01
	Sattankulam	27th ,,	2·62
	Keeranur	,, ,,	2·50

The total rainfall of the month was about 50 per cent. heavier than usual, as is shown by the following data :—

District.	Rainfall.			
	Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madura	8·29	5·97	+2·32	+39
Tinnevelly	11·13	6·63	+4·50	+68

In south-central Madras the rainfall was similar to that reported in south Madras, but was considerably lighter in Salem, so that the month's fall for the whole division was about normal. This is shown below :—

District.	Rainfall.			
	Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Salem	2·50	3·89	−1·39	−36
Coimbatore	4·72	3·69	+1·03	+28

Central Madras received showers on the 1st, the 6th to 9th, and the 17th to 19th, and the total rainfall was lighter than usual, as is shown below:—

District.	Rainfall.			
	Average actual, November 1902.	Average normal, November	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah	1·56	3·65	—2·09	—57
Anantapur	0·62	1·85	—1·23	—66
Bellary	1·30	1·40	—0·10	— 7
Kurnool	1·53	1·41	+0·12	+ 9

The north division of the east coast received showers between the 1st and the 8th. After the latter date the weather cleared and was fine till the end of the month. In consequence the month's rainfall was lighter than usual, as is shown by the following district data:—

District.	Raifnall.			
	Average actual, November, 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Ganjam	0·66	2·52	—1·86	—74
Vizagapatam	1·36	2·74	—1·38	—50
Godavari	2·52	3·23	—0·71	—22
Kistna	2·10	3·01	—0·91	— 3

The central district of the east coast had four showery periods, *viz.*, between the 1st and the 8th, the 13th and 14th, the 17th to the 20th and the 27th to the 29th. Heavy falls were received on the 18th and 19th, when the following amounts exceeding 4″ in 24 hours were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Nellore	Iskapalle	18th November	6·40
	Kavali	,, ,,	5·13
	Kandukur	,, ,,	5·08
	Kavali	19th ,,	5·80
	Kanigiri	,, ,,	4·72

The following gives comparative data for the Nellore district:—

District.	Rainfall.			
	Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Nellore	10·53	8·12	+2·41	+30

In the south of the east coast the weather was more or less rainy throughout the month, but more particularly so between the 9th and 10th, the 17th and 22nd, and the 26th to 29th, during which periods the following falls exceeding 4″ in 24 hours were registered:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
South Arcot	Merkanam	9th November	4·50
,,	Chidambaram	10th ,,	4·50
Tanjore	Tiruppundi	,, ,,	4·30
North Arcot	Kalahasti	17th ,,	4·13
Chingleput	Attipát	,, ,,	4·10
Tanjore	Muttupet	21st ,,	4·35

The total rainfall of the month was about normal, as is shown by the following comparative data for the districts composing the division:—

District.	Rainfall.			
	Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madras	10·53	13·48	—2·95	—22
Chingleput	12·22	12·17	+0·05	0
North Arcot	5·49	6·74	—1·25	—19
South Arcot	9·57	9·47	+0·10	+ 1
Tanjore	12·57	11·06	+1·51	+14
Trichinopoly	4·82	5·54	—0·72	—13

The following table shows the total rainfall of the month at the Extra-Indian stations in Persia, Arabia, Afghanistan, Kashgaria and the South-East Trades region :—

STATION.	RAINFALL.			
	Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee	27·20	13·57	+13·63	+100
Colombo	22·44	13·13	+9·31	+71
Minicoy	7·59	4·15	+3·44	+83
Amini Divi	2·25	1·58	+0·67	+42
Meshed	1·55	0·51	+1·04	+204
Teheran	2·47	0·96	+1·51	+157
Ispahan	4·05	0·92	+3·13	+340
Bushire	6·07	1·79	+4·28	+239
Bahrein	0·10	...	...	...
Jask	0	0·49	−0·49	−100
Muscat	0	0·61	−0·61	−100

DISTRICT.	RAINFALL.			
	Average actual, November 1902.	Average normal, November.	Variation of actual from normal, November 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Baghdad	2·04	0·92	+1·12	+122
Bussrah	3·12	...	...	...
Aden	0·07	0·23	−0·16	−70
Perim	0·07	0·04	+0·03	+75
Kabul	0·89	0·72	+0·17	+24
Kashgar	0	0·03	−0·03	−100
Zanzibar	7·33	9·28	−1·95	−21
Seychelles	10·51	9·34	+1·17	+13

The preceding data show that the rainfall of the month was in large excess over Asiatic Turkey, west and north Persia, and Afghanistan, while no rain fell at Muscat or Jask, and practically none at Aden and Perim. In Kashgaria also the weather was rainless. Over Ceylon and at Minicoy and Amini Divi the weather was much wetter than usual. In the south-east Trades region the variations in the rainfall were irregular. At the Seychelles the fall was about normal while at Zanzibar it was in slight defect.

W. L. D.

TABLE I.—Abstract of Observations taken at 8 A.M. at 229 Stations in India, Burma, etc., in November, 1902.

Table

Abstract of Observations taken at 8 A.M. at 229

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.				+·035								87·7	1·0	72·8	+0·6	80·2	+0·8	14·9					22·4
1	Tenasserim and Bay Islands.	Car Nicobar*	25	29·942		29·895	30·016	19th	29·870	30th	·146	78·9	85·1		75·8		80·5		9·3	88·2	4th	73·2	10th	15·0
		Port Blair	61	29·931	+·048	29·923	30·001	21st	29·879	12th & 13th.	·122	80·8	87·1	+0·3	77·7‖	+0·5‖	82·3‖	+0·4	9·4	89·9	26th	70·9	8th	19·0
		Mergui	96	29·897	+·035	29·925	29·955	7th	29·845	12th	·110	78·0	89·3	+1·9	72·8	+3·1	81·1	+2·5	16·5	91·1	21st, 23rd & 26th.	69·4	11th & 28th.	21·7
		Tavoy	26	29·984	+·020	29·941	30·049	7th	29·923	11th	·126	77·7	89·3	+1·4	71·1	+2·6	80·2	+2·0	18·2	91·7	18th	67·0	11th & 12th.	24·7
		Moulmein	94	29·921	+·035	29·953	29·977	2 days	29·856	1st	·121	79·1	91·4	+3·0	73·4	+2·3	82·4	+2·7	18·0	94·0	19th	68·3	27th	25·7
	Lower Burma	Rangoon	57	29·970	+·025	29·948	30·031	21st	29·899	1st	·152	76·5	88·6	+1·0	72·5	+0·2	80·5	+0·6	16·1	90·1	5 days	68·3	14th	21·8
		Bassein	27	29·986	+·036	29·949	30·044	2 days	29·919	1st	·125	75·1	87·2	+1·0	71·8	+0·3	79·5	+0·7	15·4	90·2	4 days	67·2	26th	23·0
		Diamond Island, Akyab	41	29·968	+·036	29·944	30·040	21st	29·900	1st	·140	79·8	85·8	+0·3	77·3	+2·1	81·6	+1·2	8·5	88·4	2nd, 5th & 7th,	74·2	25th & 27th.	14·2
5	Arakan	Toungoo	20	30·018	+·048	29·981	30·101	21st	29·922	1st	·179	72·6	86·1	+1·0	69·6	−1·8	77·9	−0·4	16·5	89·9	1st & 5th	64·2	24th	25·7
3	Central Burma		183	29·850	?	29·980	29·935	21st	29·737	2nd	·198	72·8	86·8	−0·5	65·8	−4·2	76·3	−2·4	21·0	92·3	2nd	59·1	14th	33·2
	II.—Burma, Inland.				+·045								85·6	−0·3	63·3	−2·2	74·5	−1·3	22·3					34·7
3	Central Burma	Thayetmyo	130	29·928	?	30·002	30·000	17th	29·827	1st	·173	74·7	89·0	+1·0	64·3	−3·0	76·7	−1·0	24·7	93·0	2nd & 5th	57·0	13th	36·0
4	Upper Burma	Minbu	165	29·901	+·034	30·013	29·998	21st	29·774	1st	·224	72·9	87·2	−1·4	67·6	−0·6	77·4	−1·0	19·6	94·2	3rd	60·0	14th	34·2
		Yamethin	657	29·381	+·025	30·008	29·479	21st	29·272	1st	·207	70·8	88·3	−0·5	61·9	−2·1	76·6	−1·3	23·4	94·3	6th	57·7	14th	36·6
		Mandalay	250	29·809	+·053	30·015	29·901	21st	29·690	2nd	·211	71·7	87·5	+0·8	65·6	−1·6	76·6	−0·4	21·9	91·0	4 days	60·1	4 days	30·9
		Kindat	377	29·720	+·055	30·068	29·822	24th	29·581	1st	·241	65·8	81·4	0	61·9	−2·4	71·7	−1·2	19·5	85·3	1st	53·8	24th	31·5
		Bhamo	381	29·706	+·057	30·063	29·791	21st	29·589	1st	·202	62·4	80·1	−1·7	55·7	−3·5	67·9	−2·6	24·4	86·0	8th	47·2	17th	38·8
4(*a*)	Burma Hill Stations.	Maymyo ¶		26·512			26·598	7th	26·438	1st	·160	63·5	74·7		51·8		63·2		22·9	79·0	1st	41·8	21st	37·2
		Taunggyi																						
		Lashio		27·273	+·036		27·341	7th	27·177	2nd	·164	58·6	77·2	+0·1	53·2	−1·1	65·2	−0·5	24·0	81·6	1st & 2nd	47·0	13th	34·6
	III.—Assam.				+·054								79·8	−0·4	59·0	−2·8	69·4	−1·6	20·8					31·3
7	Surma	Silchar	104	29·978	+·059	30·038	30·073	21st	29·855	1st	·218	66·5	85·1	+0·3	60·2	−3·4	72·7	−1·6	24·5	89·5	1st	50·9	24th	38·6
9	Brahmaputra	Sibsagar	333	29·781	+·051	30·088	29·861	21st	29·638	1st	·223	60·5	76·8	−1·5	57·1	−2·5	67·0	−2·0	19·7	80·3	4 days	49·9	28th	30·4
		Dhubri	115	29·972	+·053	30·047	30·064	21st	29·858	1st	·206	66·6	79·8	0	61·1†	−2·4†	70·5†	−1·2	18·7	83·1	2nd, 3rd & 4th.	55·8	29th	27·3
		Gauhati	195	29·916		30·076	30·004	21st	29·782	1st	·222	63·7	80·5		58·5		69·5		22·0	85·0	3rd	52·1	30th	32·9
		Tezpur	252	29·853		30·072	29·938	21st	29·721	1st	·217	62·8	77·6		59·7		68·7		17·9	81·1	1st	54·0	26th & 28th.	27·1
		Dibrugarh	353	29·757		30·087	29·854	24th	29·618	1st	·236	62·8	78·7		57·2		68·0		21·5	82·6	4th	50·9	27th	31·7
	IV.—Bengal and Orissa.				+·050								82·8	+0·3	62·4	−1·3	72·6	−0·5	20·4					31·0
6	East Bengal	Chittagong	87	29·972	+·036	30·010	30·059	21st	29·873	1st	·186	69·0	83·7	+0·7	62·4	−3·4	73·0	−1·4	21·3	88·5	1st	57·1	4 days	31·4
		Noakhali	43	30·006		29·996	30·104	21st	29·891	1st	·213	71·3	83·7		61·9		72·8		21·8	88·5	2nd	54·1	24th	34·4
		Comilla	36	30·020		30·005	30·106	21st	29·901	1st	·205	69·2	83·6		61·8		72·7		21·8	88·3	2nd	54·0	24th	34·3
		Sirajganj	49	30·020		30·020	30·110	21st	29·905	1st	·205	68·1	81·7		63·9		72·8		17·8	86·3	1st	59·0	24th	27·3
		Narayanganj	26	30·041	+·059	30·016	30·139	21st	29·926	1st	·213	70·8	82·9	−0·6	65·8	−0·2	74·4	−0·4	17·1	88·1	1st	59·8	24th	28·3
		Barisal	13	30·020	+·030	29·985	30·118	21st	29·925	1st	·193	71·8	82·9	+0·1	63·6	−1·4	73·3	−0·7	19·3	88·3	2nd	57·2	24th	31·1
		Mymensingh	59	30·000	+·039	30·012	30·092	21st	29·890	1st	·202	69·3	81·7	+0·2	63·2	−0·5	72·5	−0·2	18·5	86·1	1st	58·4	30th	27·7
10	Deltaic Bengal	Faridpur	46	30·026		30·021	30·128	21st	29·915	1st	·213	70·1	81·6		62·4		72·0		19·2	86·5	1st	55·8	24th	30·7
		Jessore	33	30·030	+·045	30·011	30·136	21st	29·936	1st	·200	68·4	82·7	−0·4	61·2	−2·8	72·0	−1·6	21·5	88·5	1st	54·1	27th	34·4
		Calcutta	21	30·057	+·053	30·025	30·166	21st	29·952	1st	·214	69·4	82·7	+1·3	62·4	−1·1	73·1	+0·1	19·3	88·1	4th	57·1	22nd, 25th & 26th.	31·0
		Saugor Island	25	30·043	+·048	30·013	30·157	21st	29·944	1st	·213	71·7	83·3	+1·0	66·0†	−1·1	74·7†	+0·3	17·3	86·9	1st & 4th	59·9	23rd & 25th.	27·0
		Krishnagar	47	30·044?		30·041?	30·153	21st	29·936	1st	·217	69·5	83·7		61·0		72·4		22·7	87·7	1st	53·5	25th	34·2
		Midnapore	19	29·922		30·024	30·028	21st	29·818	2nd	·210	69·1	84·5		63·1		73·8		21·4	90·3	4th	55·6	23rd	34·7

* Observation of 29 days. † Mean of 29 days. ‖ Mean of 24 days. ¶ Observation of 22 days.

I.

Stations in India, Burma, etc., in November, 1902.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th November 1902.	Normal rainfall for period, 1st May to 30th November.	Variation from normal o period, 1st May to 30th November 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				3·39	3·57	−1·33					I.—Burma Coast and Bay Islands.		
8	3	3	2	2	2	2	1		N 80° E	3·3‡	3·3‡			91	·895	7·3**	13			13·73						3·20	Car Nicobar††	Tenasserim and Bay Islands.	1
	2	7	3	8	2	1	3	4	N 79° E	4·9	5·5	7·1	−23	88	·922	5·9	14			14·13	9·20	+ 4·93	125·52	105·86	+19·66	3·84	Port Blair.		
20	5	3			1			1	N 12° E	1·6	1·4	1·6	−13	83	·789	4·1	4	5·60	−1·60	0·86	3·70	−2·84	122·11	155·53	−33·39	0·36	Mergui,		
28	1	1							N 24° E	1·1				85	·810	0·5	2	3·90	−1·90	0·84	1·96	− 1·12	188·91	203·34	−14·43	0·52	Tavoy,		
20	1	6	1	1				1	N 45° E	1·4	1·6	2·4	−33	82	·818	0·8	0	2·50	−2·50	0	1·93	− 1·93	165·18	179·79	−14·61	0	Moulmein		
	9	15	1	1				4	N 23° E	3·4	2·9	4·4	−34	81	·748	2·1	0	2·80	−2·80	0	2·43	— 2·43	63·83	94·23	?	0	Rangoon .	Lower Burma.	2
4	5	9	7				1	4	N 34° E	3·4		3·1	+10	83	·738	3·0	3	3·80	−0·80	2·22	3·51	— 1·29	108·14	109·88	— 1·74	1·26	Bassein,		
	1	21	8						N 55° E	12·2	12·2	8·6	+42	74	·764	2·7	3	7·10	−4·10	1·05	5·41	− 4·36	98 72	113·59	−14 87	0·58	Diamond Island,		
	17	13							N 19° E	2·5	2·4	2·2	+ 9	90	·732	1·2	0	2·80	−2·80	0	2·77	−2·77	184·61	186·52	— 1·91	0	Akyab. .	Arakan.	5
2	4	2		2		1	1	18	N 36° W	2·6	2·6	1·7	+53	85	·703	2·5	2	2·00	0	1·08	1·20	— 0·12	62·90	76·32	−13·42	0·87	Toungoo .	Central Burma.	3
																				0·15	1·24	−1·09					II.—Burma Inland.		
	8	13	3	1	1		1	3	N 29° E	3·2		3·5	−9	76	·663	2·6	0	2·40	−2·40	0·07	1·74	— 1·67	33·92	35·58	— 1·66	0·07	Thayetmyo .	Central Burma	3
1				1			1	27	N 47° W	6·0	7·1			74	·613	2·4	0	1·30	−1·30	0	0·45	− 0·45	23·22	30·31	− 7·09	0	Minbu .	Upper Burma.	4
6	15			2	1			6	N 10° W	2·0	2·1			82	·632	3·0	0	2·60	−2·60	0·04	0·97	− 0·93	32·82	34·88	− 2·06	0·04	Yamethin,		
	13	10	1	3	2			1	N 30° E	3·8	3·8			82	·637	2·3	1	2 90	−1·90	0·28	1·71	—1·43	27·88	30 69	− 2·81	0·28	Mandalay,		
25	4							1	N 9° W	0·7	0·7			95	·610	1·9	3	2·70	+0·30	0·41	1·57	—1·13	65·72	66·72	— 1 00	0·16	Kindat,		
20	1	7	2						N 47° E	0·8	0·9			92	·526	1·6	0	2·00	−2·00	0·06	1·01	− 0·95	64·94	69·53	− 4·59	0·05	Bhamo,		
22									Calm	1·5§				87	·511	6·5	3	4·90	−1·90	1·11	3·01	− 1·90	56·81	55·00	+ 1·81	0·60	Mayuyo .	Burma Hill Stations.	4(a)
																											Taunggyi,		
	7	9	4	1		2	2	5	N 16° E	2·0				95†	·464†	7·3	2			1·88	2·18	− 0·30	53·25	57·16	− 3·91	1·39	Lashio,		
																				0·31	0·80	−0·33					III.—Assam.		
24			4	2					S 75° E	1·0	1·7	2·1	−19	88	·584	1·6	2	2·00	0	0·92	1·25	− 0·33	91·11	99·15	− 8·04	0·64	Silchar .	Surma.	7
22	1	4		1		1		1	N 34° E	1·3	1·2	1·7	−29	100	·533	7·0	2	2·00	0	0·49	0·93	— 0·44	78·71	77·74	+ 0·97	0·24	Sibsagar .	Brahmaputra.	3
1		10	18			1			N 75° E	3·4	4·0	4·9	−18	86	·567	0·7	0	0·30	−0·30	0	0·22	−0·22	110·67	85·69	+24·98	0	Dhubri,		
4	11	6	2	3	3			1	N 35° E	1·4	1·6			94	·566	1·4	0	0·80	−0·80	0			38·41			0	Gauhati,		
8		5	16	1					N 81° E	2·3	2·4			91	·525	2·5	0	1·20	−1·20	0·03			60·05			0·03	Tezpur,		
	2	18	6	1	1	1		1	N 54° E	1·0	1·0			87	·496	2·4	1	1·50	−0·50	0·40			110·26			0·33	Dibrugarh,		
																				0·13	0·91	−0·78					IV.—Bengal and Orissa.		
	1	28		1					N 46° E	2·8	2·7	3·0	−10	87	·626	1·11‡	0	1·80	−1·80	0	1·48	− 1·48	106·42	87·60	+18·62	0	Chittagong .	East Bengal.	6
	11	11	4		1			3	N 27° E	1·5	1·6			84	·642	1·8	0	1·39	−1·39	0	1·61	− 1·61	132·59	104·45	+28·14	0	Noakhali,		
26	1		2		1				E	1·2	1·0			87	·619	0·6	1	1·55	−0·55	0·16	1·19	− 1·03	73·75	79·50	− 5·75	0·16	Comilla,		
23			3	2		1		1	S 72° E	0·6	0·6			91	·630	1·8	0	0·81	−0·81	0	0·55	− 0·55	74·62	55·68	+18·94	0	Sirajganj,		
13	3	7	2	1			1	3	N 29° E	1·5		1·9	−21	85	·643	2·1	0	1·33	−1·33	0	1·07	— 1·07	61·70	60·52	+ 1·18	0	Narayanganj,		
9		1	2	5	5	2	3	3	S 3° W	1·3				85	·666	1·2	1	1·32	−0·32	0·45	1·26	— 0·81	105·17	70·21	+34·96	0·45	Barisal,		
30									Calm	1·0	0·9			85	·609	?	0	0·90	−0·90	0	0·65	— 0·65	96·61	78·57	+18·04	0	Mymensingh,		
10	7	5		3				5	N 10° E	1·4	1·2			89	·652	1·3	1	1·23	−0·23	0·21	1·03	— 0·82	71·60	60·21	+11·39	0·21	Faridpur .	Deltaic Bengal.	10
23	3	1	2					1	N 27° E	0·8		1·8	−56	86	·605	1·3	0	1·10	−1·10	0·08	1·38	− 1·30	53·20	57·11	− 3·91	0·08	Jessore,		
6	9	3				1	1	10	N 21° W	2·5		3·0	−17	84	·610	1·4	0	0·96	−0·96	0·05	0·63	− 0·63	54·00	55·39	— 1·39	0·03	Calcutta,		
14		13	1		1			1	N 48° E	6·3		6·4	— 2	97	·677	2·2	0	1·35	−1·35	0·01	1·71	— 1·70	58·90	68·39	− 9·49	0·01	SaugorIsland		
6	5	2	3	1		1	2	10	N 23° W	1·6	1·8			84	·611	1·7	0	0·81	−0·81	0	0·74	— 0·74	39·55	49·95	−10·40	0	Krishnagar,		
2	24	1			1			2	N 2° W	2·1	1·9			73	·530	0·9	1	1·14	−0·14	1·06	0·80	+ 0·26	46·04	55·97	- 9·93	1·06	Midnapore,		

** Mean of 25 days. ‡ Mean of 28 days. § Mean of 21 days. †† Wind variable 6. ‡‡ Mean of 27 days.

Table

Abstract of Observations taken at 8 A.M. at 229 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal.	Bankura	298	29·758		30·019	29·860	21st	29·656	1st	·204	69·4	83·5		62·2		72·8		21·3	88·1	4th	55·8	23rd	32·3
		Raniganj	334	29·731		30·031	29·842	21st	29·628	2nd	·214	65·8	83·5		60·5		72·1		23·0	86·4	6th	54·2	23rd	32·2
		Burdwan	101	29·974	+·042	30·024	30·092	21st	29·876	1st	·216	68·5	84·0	+0·8	63·6	−0·7	73·8	+0·1	20·4	88·2	4th	58·6	23rd	29·6
		Naya Dumka	489	29·585?		30·056?	29·689	21st	29·480	1st	·209	66·2	81·0		59·9		70·5		21·1	85·2	5th	53·0	22nd	32·2
		Berhampore	67	30·014	+ ·051	30·031	30·121	21st	29·907	1st	·214	69·6	83·7	+1·8	64·7	+0·7	74·2	+1·3	19·0	87·2	1st	59·7	22nd & 23rd.	27·5
		Rampur Boalia	70	30·009		30·030	30·107	21st	29·897	1st	·210	68·7	81·5		62·8		72·2		18·7	85·1	1st & 5th.	58·1	4 days	27·0
		Malda	72	29·994		30·020	30·092	21st	29·877	1st	·215	68·6	81·8		61·8		71·8		20·0	85·9	4th	56·0	25th	29·9
		Bogra	61	30·002	+·056	30·018	30·096	21st	29·900	1st	·196	66·9	81·5	−0·5	62·5	+0·1	72·0	−0·2	19·0	85·2	1st	57·2	25th	28·0
12	North Bengal	Dinajpur	123	29·957	+·051	30·041	30·048	21st	29·840	2nd	·208	65·8	81·7	−0·7	59·6	−1·4	70·7	−1·1	22·1	85·3	4th	54·9	23rd	30·4
		Rangpur	123	29·969		30·052	30·001	21st	29·844	1st	·217	68·3	81·3		60·5		70·9		20·8	84·7	4th & 5th.	55·3	30th	29·4
		Jalpaiguri	284	29·803	+·053	30·057	29·898	21st	29·684	2nd	·214	65·9	80·2	−1·2	59·4	−1·3	69·8	−1·3	20·8	82·4	5th, 10th & 11th.	53·5	28th	28·9
		Cooch Behar	156	29·936		30·055	30·030	21st	29·805	1st	·225	65·0	80·7		60·0		70·4		20·7	83·2	8th	53·5	27th	29·7
17	North Bihar	Purnea	125	29·966	+·057	30·052	30·069	21st	29·842	1st	·227	63·8	81·2	−0·7	57·8*	−1·4	69·5*	−1·1	23·4	85·0	4th	51·1	30th	33·9
14	Orissa	Balasore	48	30·043	+·051	30·037	30·156	21st	29·938	2nd	·218	68·2	84·3	+0·7	61·3	−1·7	72·8	−0·5	23·0	89·4	4th	53·5	23rd	35·9
		False Point	21	30·052	+·052	30·015	30·162	21st	29·949	13th	·213	70·5	83·3	+0·9	62·9	−2·6	73·1	−0·9	20·4	87·4	4th & 5th.	54·5	23rd	32·9
		Cuttack	80	30·000	+·058	30·025	30·127	21st	29·894	13th	·233	68·6	86·1	+1·0	64·8	−1·3	75·5	−0·2	21·3	93·1	5th	56·6	24th	36·8
		Puri	24	30·053		30·016	30·161	21st	29·943	1st	·218	71·0	84·5		68·1		76·4		16·4	89·2	6th	61·6	23rd & 24th.	27·6
	V.—Gangetic Plain and Chota Nagpur.				+·046								82·3	+0·3	57·0	−0·9	9·7	−0·3	25·3					35·6
15	Chota Nagpur	Hazaribagh	2,007	28·031	+·041	30·046	28·124	21st	27·940	1st	·184	66·4	78·4	+1·1	58·2	+0·3	68·3	+0·7	20·2	82·2	4th	51·2	22nd	31·0
		Ranchi	2,128	27·901	+·035	30·040	27·994	21st	27·808	12th	·186	64·8	77·9	+0·1	58·1	+0·5	68·0	+0·3	19·8	81·5	5th	50·9	23rd	30·6
		Daltonganj	730?	29·365?		30·092?	29·488	21st	29·231	2nd	·257	61·0	82·4		52·8		67·6		29·6	86·5	5th	45·2	23rd	41·3
		Purulia		29·239		30·033	29·341	21st	29·124	1st	·217	67·3	82·4		59·8		71·1		22·6	86·5	4th	53·8	23rd	32·7
		Chaibassa	760	29·304	+·057	30·047	29·398	21st	29·204	11th	·194	64·7	83·3	−0·2	59·6	−0·8	71·5	−0·5	23·7	89·3	3rd	52·9	23rd	36·4
16	South Bihar	Gaya	375	29·705	+·040	30·053	29·806	21st	29·587	2nd	·219	65·4	83·3	+0·1	58·9	−0·8	71·1	−0·4	24·4	87·7	4th	52·3	23rd	35·4
		Dehri	351	29·730		30·053	29·843	21st	29·605	15th	·238	65·6	82·7		60·2		71·5		22·5	87·1	16th	54·7	23rd	32·4
		Patna	183	29·904	+·039	30·048	30·006	21st	29·786	2nd	·220	68·3	82·0	+0·3	60·7	+0·2	71·4	+0·3	21·3	85·5	16th	54·9	23rd	30·6
		Arrah	190	29·808		30·060	30·010	21st	29·792	2nd	·218	64·6	82·8		56·5		69·7		26·3	86·9	4th	51·1	24th	35·8
		Buxar	239	29·852		30·057	29·949	21st	29·733	2nd	·216	66·8	83·5		58·6		71·1		24·9	88·0	4th	51·1	23rd	36·9
17	North Bihar	Bhagalpur	160	29·929		30·048	30·043	21st	29·814	15th	·229	68·0	82·2		59·3		70·8		22·9	86·6	5th	52·6	23rd	34·0
		Darbhanga	166	29·909	+·037	30·037	30·007	21st	29·789	2nd	·218	66·1	81·1	−0·2	61·4	−0·6	71·3	−0·4	19·7	84·2	3rd & 4th.	56·7	23rd	27·5
		Muzaffarpur	178	29·916		30·056	30·017	21st	29·796	1st	·221	67·0	80·6		58·8		69·7		21·8	84·7	4th	53·3	23rd	31·4
		Motihari	224	29·877		30·068	29·989	21st	29·750	1st	·239	67·9	81·7		55·9		68·8		25·8	84·9	19th	51·9	24th, 29th & 30th.	33·0
		Chapra	181	29·901		30·045	30·009	22nd	29·782	15th	·227	64·3	82·7		57·8		70·3		24·9	87·1	4th	52·5	23rd	34·6
18	United Provinces, East.	Benares	267	29·813	+·043	30·048	29·917	21st	29·690	15th	·227	65·1	83·8	+1·7	53·2	−2·9	68·5	−0·6	30·6	89·8	3 days	46·6	23rd	43·2
		Allahabad	309	29·780	+·062	30·069	29·894	21st	29·670	1st	·224	64·0	83·0	−0·1	53·6	−1·5	68·3	−0·8	29·4	88·6	7th	48·4	17th & 23rd.	40·2
23	United Provinces (East Submontane.)	Gorakhpur	257	29·826	+·056	30·053	29·917	21st	29·702	2nd & 15th.	·215	64·4	81·1	0·5	56·3	−2·0	68·7	−1·3	24·8	85·4	4th	52·6	22nd & 23rd.	32·8
19	South Oudh	Lucknow	368	29·711	+·049	30·059	29·821	28th	29·580	2nd	·241	62·4	83·7	+0·4	52·5	−0·3	68·1	+0·1	31·2	89·3	7th	47·7	23rd & 30th.	41·6
20	North Oudh	Bahraich	401	29·665	+·040	30·048	29·763	28th	29·535	14th	·228	64·4	83·1	+0·3	55·4	−1·2	69·3	−0·5	27·7	86·6	3rd	49·0	23rd	37·6
21	United Provinces (Central.)	Cawnpore	416	29·662	+·050	30·055	29·771	21st	29·532	2nd	·239	63·5	84·1	0	53·4	−1·6	68·8	−0·8	30·7	89·3	6th & 7th	48·0	17th & 30th.	41·3
		Mainpuri	516	29·557	+·051	30·061	29·667	21st	29·420	14th	·247	62·0	84·9	+0·7	52·9	−1·3	68·9	−0·3	32·0	89·8	3rd	47·6	17th	42·2

* Mean of 27 days.

I—*continued.*

in India, Burma, etc., in November, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th November 1902.	Normal rainfall for period, 1st May to 30th November.	Variation from normal of period, 1st May to 30th November 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
30									Calm	0·8	0·9			72	·522	1·2	1	0·79	+ 0·21	0·45	0·51	— 0·06	40·61	52·10	—11·49	0·45	Bankura .	Central Bengal	11
20	2	3	2					3	N 18° E	0·6				77	·501	1·0	0	0·63	— 0·63	0·08	0·54	— 0·46	46·26	52·22	— 5·96	0·03	Raniganj.		
26	2							2	N 18° W	0·8		1·9	—58	78	·552	1·8	0	0·81	— 0·81	0·09	0·79	— 0·70	39·18	52·65	—13·47	0·06	Burdwan.		
25		1	1				1	2	N 27° W	1·2	1·3			80	·526	1·3	1	0·50	+ 0·50	0·46	0·31	† 0·15	52·96	55·37	— 2·41	0·35	Naya Dumka.		
12	10		1		1	1		5	N 14° W	0·8	0·9	1·7	—47	83	·603	1·9	0	0·52	— 0·52	0·03	0·59	— 0·56	58·43	51·43	+ 7·00	0·02	Berhampore.		
29							1		W	0·5	0·5			84	·593	0·7	1	0·68	+ 0·32	0·12	0·31	— 0·19	71·55	53·41	+18·14	0·11	Rampur Boalia.		
	9	7	2		1	2	2	7	N 3° W	0	0			83	·578	0·8	0	0·39	— 0·39	0	0·22	— 0·22	45·46	50·34	— 4·88	0	Malda.		
16	8	4	1		1				N 22° E	1·8	2·1			86	·571	1·3	0	0·58	— 0·58	0	0·78	— 0·78	75·12	62·30	+12·82	0	Bogra.		
	5	9	4	1		3	4	4	N 10° E	1·2	1·2			85	·546	0·8	0	0·19	— 0·19	0	0·04	— 0·04	74·61	67·07	+ 7·54	0	Dinajpur .	North Bengal.	12
7		11	12						N 68° E	1·7	1·8			88	·611	1·0	0	0·13	— 0·13	0	0·24	— 0·24	87·32	78·69	+ 8·63	0	Rangpur.		
	11	7	3	1	1			7	N 12° E	0·7	0·8			85	·546	1·3	0	0·32	— 0·32	0	0·13	— 0·13	146·06	117·13	+28·93	0	Jalpaiguri.		
14		3	13						N 82° E	1·2	1·2			86	·537	0·7	0	0·37	— 0·37	0	0·14	— 0·14	166·19	120·16	+ 46·03	0	Cooch Behar.		
13	2	6		2		5	1	1	N 11° E	1·4	1·3	1·2	+8	91	·542	0	0	0·16	— 0·16	0	0·08	— 0·08	49·38	62·09	— 12·71	0	Purnea .	North Bihar.	17
3	10						2	15	N 32° W	1·8				74	·522	1·0	0	1·48	— 1·48	0·09	1·22	— 1·13	47·48	59·35	—11·87	0·09	Balasore .	Orissa.	14
	11						1	18	N 30° W	4·9	4·7	6·5	—28	82	·627	3·4	1	2·45	— 1·45	0·27	2·92	— 2·65	46·00	61·71	—15·71	0·22	False Point.		
24	1	1	1			1	2		N 45° W	1·0		1·7	—41	80	·571	2·0	0	1·71	— 1·71	0	1·67	— 1·67	57·85	56·60	+ 1·25	0	Cuttack.		
3	22	2						3	N 2° W	8·3	7·8			81	·627	1·5	1	2·45	— 1·45	0·25	2·77	— 2·52	52·58	51·90	+0.68	0·16	Puri.		
																				0·13	0·29	—0·16					V.—Gangetic Plain and Chota Nagpur.		
12	5	1	1	1	1	2	3	4	N 45° W	4·8	4·2	4·3	— 2	58	·380	1·8	0	0·65	— 0·65	0·05	0·30	— 0·25	40·34	50·77	—10·43	0·05	Hazaribagh .	Chota Nagpur.	15
12	2	2	1				1	12	N 30° W	2·8	2·8			63	·392	2·1	1	0·72	+ 0·28	0·19	0·39	— 0·20	45·59	51·84	— 6·25	0·13	Ranchi.		
29				1					S 45° E	1·3	1·5			77	·425	0·9	0	0·68	— 0·68	0·07	0·35	— 0·28	30·27	42·05	—11·78	0·07	Daltonganj.		
16							4	10	N 58° W	0·8	1·0			68	·462	1·0	2	0·74	+ 1·26	1·40	0·24	+ 1·16	46·22	49·07	— 2·85	0·95	Purulia.		
24		1				2	2	1	W	0·8	0·7			80	·501	1·1	1	0·81	+ 0·19	0·18	0·77	— 0·59	49·07	47·38	+ 1·69	0·18	Chaibassa.		
17		1		1	5	3	1	2	S 27° W	3·2	2·9	1·2	+142	71	·451	1·7	1	0·48	+ 0·52	0·33	0·47	— 0·14	39·08	44·91	— 5·83	0·28	Gaya . .	South Bihar.	16
3				14	13				S 21° W	3·4	3·0			72	·459	1·4†	1	0·44	+ 0·56	0·38	0·28	+ 0·10	41·43	41·14	+ 0·29	0·32	Debri.		
3		3	1	2	1	11	4	5	S 66° W	1·8	2·1	1·5	+40	73	·511	0·8	0	0·32	— 0·32	0	0·22	— 0·22	44·44	46·12	—1·68	0	Patna.		
17						3	4	6	N 79° W	0·8	0·9			77	·476	0	0	0·42	— 0·42	0	0·21	— 0·21	37·63	43·48	— 5·85	0	Arrah.		
6			2		1	5	14	2	S 80° W	3·3	3·1			68	·457	0·8	0	0·39	— 0·39	0·02	0·40	— 0·38	35·77	39·62	— 3·85	0·02	Buxar.		
23	1	1	2		1	1	1		E	1·0	0·9			76	·527	0·7	0	0·23	— 0·23	0·05	0·17	— 0·12	39·33	46·74	— 7·41	0·05	Bhagalpur .	North Bihar.	17
22	2	1		1		1	2	1	N 45° W	0·7		1·8	—61	87	·559	0·4	0	0·19	— 0·19	0	0·09	— 0·09	51·03	48·71	+ 2·32	0	Darbhanga.		
29				1					S 45° E	0·6				83	·551	0	0	0·37	— 0·37	0	0·12	— 0·12	42·10	43·40	— 0·30	0	Muzaffarpur.		
	2	9	5	2		3	6	3	N 23° E	1·5	1·5			82	·558	0	0	0·18	— 0·18	0	0·12	— 0·12	68·12	49·39	+18·73	0	Motihari.		
25					1	2	2		S 56° W	1·2	1·1			82	·498	0·7	0	0·39	— 0·39	0·03	0·25	— 0·22	30·16	38·87	— 8·71	0·03	Chapra.		
22		1			1	6			S 38° W	1·1	1·3	2·1	—38	76	·478	0·6	0	0·30	— 0·30	0·13	0·31	— 0·18	27·77	39·27	—11·50	0·09	Benares .	United Provinces East.	18
13	2	1			1	2	8	3	N 78° W	2·0	2·3	2·0	+15	74	·445	1·0	0	0·30	— 0·30	0·06	0·25	— 0·19	39·09	38·87	+ 0·22	0·06	Allahabad.		
14	1	3	1	1	1	1	2	6	N 31°W	1·0		0·9	+11	81	·495	0·7	0	0·10	— 0·10	0	0·15	— 0·15	44·35	49·84	— 5·49	0	Gorakhpur .	United Provinces (East Submontane)	23
23	1					2	3	1	N 87° W	0·7	0·8	1·4	—43	72	·402	0	0	0·20	— 0·20	0	0·11	— 0·11	32·45	36·74	— 4·29	0	Lucknow .	South Oudh.	19
23		1	1				1	4	N 32° W	7·6	7·2			73	·449	0·2	0	0·30	— 0·30	0	0·40	— 0·40	44·09	45·67	— 1·58	0	Bahraich .	North Oudh.	20
11	1	2			2	6	7	1	S 74° W	2·0				64	·382	0·2	0	0·10	— 0·10	0	0·44	— 0·44	26·40	34·32	— 7·92	0	Cawnpore .	United Provinces (Central).	21
28					1		1		S 45° W	0·2	0·2			58	·328	1·1	0	0·10	— 0·10	0	0·31	— 0·31	18·62	29·21	—10·59	0	Mainpuri.		

† Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 229 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of barometer above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas				+·043								81·0	+0·2	52·1	+2·0	66·6	+1·1	29·0					39·6
24	United Provinces, (West Submontane).	Bareilly	568	29·495	+·051	30·057	29·602	21st	29·351	14th	·251	60·2	81·3	+·02	53·4	+0·6	67·3	+0·4	27·9	84·9	2nd, 3rd & 6th	47·2	30th	37·7
		Dehra Dun	2,233	27·801	+·036	30·082	27·895	21st	27·694	14th	·201	57·0	75·3	+0·3	52·0	+0·2	63·7	+0·3	23·3	78·5	3rd	47·5	22nd	31·0
		Roorkee	899	29·154	+·048	30·078	29·256	21st	29·026	14th	·230	55·8	80·6	+0·1	49·4	−0·4	65·0	−0·2	31·2	84·3	1st	43·6	22nd	40·7
22	United Provinces, West.	Meerut	738	29·307	+·036	30·057	29·423	21st	29·171	14th	·252	56·9	82·9	+1·6	50·8	+0·2	66·9	+0·9	32·1	86·5	7th, 12th & 13th	45·7	17th & 30th	40·8
26	South-East Punjab.	Delhi	718	29·344	+·046	30·064	29·463	21st	29·260	14th	·263	61·9	82·4	−0·5	57·8	+1·6	70·1	+0·6	24·6	86·7	7th	51·6	28th	35·1
28	Central Punjab.	Lahore	702	29·356	+·042	30·072	29·489	21st	29·194	12th	·295	57·8	83·4	−0·2	51·6	+4·8	67·5	+2·3	31·8	88·9	1st	42·5	15th	44·4
27	South Punjab	Sirsa	662	29·409	+·052	30·074	29·551	21st	29·250	12th	·301	61·1	85·8	+0·9	53·4	+3·9	69·6	+2·4	32·4	91·8	11th	46·1	15th	45·7
		Patiala	818	29·238*		30·070*	29·358	21st	29·102	14th	·256	59·3	81·2		50·9		66·1		30·3	85·5	6th	46·0	17th	39·5
29	Punjab (Submontane).	Ludhiana	812	29·237	+·043	30·067	29·350	21st	29·104	12th	·246	58·0	80·7	+0·1	53·1	+2·2	66·9	+1·2	27·6	85·6	2nd & 12th	49·2	15th, 17th & 30th	36·4
		Sialkot	830	29·220	+·044	30·073	29·357	21st	29·090	12th	·267	57·6	81·5	+0·6	53·5	+3·6	67·5	+2·1	28·0	89·1	1st	47·1	29th & 30th	42·0
		Umballa	892	29·156	+·043	30·073	29·275	21st	29·042	14th	·233	56·7	83·0	+0·7	46·8?	?	64·9?	?	36·2?	87·0	5th 12th & 25th	40·5	29th	46·5
31	North Punjab	Rawalpindi	1,674	28·371	+·030	30·120	28·515	24th	28·244	12th	·271	53·0	76·2	−1·0	46·7	+3·4	61·5	+1·2	29·5	82·9	9th & 10th	41·0	16th 22nd & 27th	41·9
	VII.—N.-W. Frontier Province, Indus Valley and North-West Rajputana.				+·034								86·5	+1·4	56·4	+2·9	71·5	+2·2	30·1					42·2
31	North Punjab	Peshawar	1,110	28·973	+·031	30·135	29·148	24th	28·842	12th	·306	55·4	75·8	−1·3	48·9	+3·8	62·4	+1·3	26·9	83·2	6th	42·9	14th	40·3
32	West Punjab	Khushab	612	29·468	+·052	30·087	29·613	21st	29·359	12th	·274	60·5	82·5	−0·3	53·8	+4·1	68·2	+1·9	28·7	85·8	5th & 6th	45·5	30th	43·3
		Montgomery	558	29·506	+·032	30·061	29·645	21st	29·337	12th	·308	62·4	84·4	+0·2	53·3	+2·4	68·9	+1·3	31·1	91·0	5th	44·5	27th	46·5
		D. I. Khan	590	29·489	+·024	30·065	29·653	24th	29·349	12th	·304	58·2	82·5	+0·4	51·2	+4·2	66·9	+2·3	31·3	90·3	6th	44·6	27th	45·7
		Mooltan	429	29·654	+·029	30·068	29·798	21st & 24th	29·493	12th	·305	62·0	86·2	+1·8	56·8	+4·4	71·5	+3·1	29·4	92·3	7th & 9th.	49·9	30th	42·4
47	Sind	Jacobabad	186	29·889	+·028	30·046	30·048	21st	29·732	12th	·316	63·1	89·9	+3·1	54·9	+4·1	72·4	+3·6	35·0	97·0	13th	49·5	30th	47·5
		Hyderabad	96	29·986	+·038	30·039	30·112	21st	29·875	1st	·237	69·7	90·8	+2·8	62·1	+2·1	76·5	+2·5	28·7	98·1	6th & 12th	58·0	9th, 15th & 24th	40·1
		Kurrachee	30	30·065	+·041	30·047	30·185	21st	29·939	1st	·246	71·5	91·7	+4·3	64·9	+3·1	78·3	+3·7	26·8	96·9	4th	60·7	23rd & 30th	36·2
51	West Rajputana	Bikaner	771	29·291	+·045	30·065	29·427	21st	29·149	12th	·278	65·2	86·4	+1·7	59·6	+0·2	73·0	+1·0	26·8	91·2	10th & 11th	51·1	29th	40·1
		Pachpadra	380	29·720	?	30·078	29·818	22nd	29·593	1st	·225	65·1	91·7	+0·9	55·0	+0·9	73·3	+0·9	36·7	95·3	8th & 9th	50·6	29th	44·7
		Jodhpur	782	29·288		30·084	29·407	21st	29·175	1st	·232	67·3	89·9		55·9		74·9		30·0	94·1	10th	56·2	11th	37·9
	VIII.—East Rajputana, Central India and Gujarat.				+·041								87·4	+0·4	59·5	+1·3	73·5	+0·9	27·9					38·0
50	East Rajputana	Jaipur	1,431	28·648	+·047	30·098	28·751	21st	28·529	12th	·222	64·6	86·3	+0·5	55·3	+0·1	70·8	+0·3	31·0	90·7	11th	51·0	16th	39·7
		Bharatpur	585	29·498		30·075	29·649	20th	29·345	14th	·304	62·3	86·3		55·3		70·8		31·0	90·0	13th	50·3	9th.	39·7
		Kotah	819	29·257		30·114	29·376	21st	29·129	1st	·247	65·5	86·5		58·4		72·5		28·1	91·0	7th & 8th	55·0	8 days	36·0
		Sambhar	1,254	28·820	+·052	30·102	28·930	21st	28·696	12th	·234	59·7	86·1	+1·6	53·3	+0·4	69·7	+1·0	32·8	90·4	4 days	48·9	18th	41·5
		Ajmer	1,611	28·459	+·030	30·114	28·577	21st	28·332	12th	·245	59·4	83·8	−0·1?	54·9	+3·9?	69·3	+1·9?	28·9	87·9	4 days	51·3	18th & 30th	36·6
		Udaipur	1,925	28·153		30·114	28·263	21st	28·015	1st	·248	61·9	83·6		52·2		67·9		31·4	88·5	6th	47·7	30th	40·8
		Deesa	466	29·598	+·036	30·035	29·704	22nd	29·461	1st	·243	71·6	93·5	+2·0	59·6	+1·9	76·6	+2·0	33·9	98·1	8th	56·1	28th	42·0
46	Kathiawar and Cutch.	Bhuj	395	29·671	+·043	30·028	29·775	22nd	29·545	1st	·230	75·6	90·8	+1·6	64·1	+1·4	77·5	+1·5	26·7	97·3	7th	59·0	30th	38·3
		Jamnagar	61	30·019		30·026	30·113	22nd	29·889	1st	·224	71·1	90·9		62·6		76·8		28·3	96·6	1st	56·3	24th, 29th & 30th.	40·3
		Rajkot	429	29·623	+·038	30·016	29·717	22nd	29·498	1st	·219	72·6	90·6	+0·2	61·6	+2·3	76·1	+1·3	29·0	96·9	6th	53·5	30th	42·4
		Veraval	18	30·018	+·025	29·978	30·112	24th	29·872	1st	·240	75·9	89·1	+0·8	68·5	+0·8	78·8	+0·8	20·6	94·1	8th	62·3	25th	31·8
		Dwarka	37	30·026		30·009	30·121	22nd	29·898	1st	·223	77·5	89·4		68·7		79·1		20·7	95·4	5th,	63·1	26th & 29th.	32·3
		Bhavnagar Para.	55	30·019	+·024	30·022	30·106	23rd & 24th	29·862	1st	·244	71·5	90·6	+0·7	63·7	?	77·2	?	26·9	95·6	6th & 7th.	54·2	29th	41·4
49	Central India	Nowgong	757	29·317	+·040	30·075	29·433	21st	29·192	1st	·241	59·4	80·6	−1·7	53·5	+0·3	67·1	−0·7	27·1	85·0	7th	47·5	17th	37·5
		Indore	1,823	28·244	+·035	30·075	28·352	21st	28·084	1st	·268	66·1	81·2	−2·0	54·9	+0·8?	68·1	−0·6	26·3	84·8	7th	47·1	28th & 29th.	37·7

—continued.

in India, Burma, etc., in November, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th November, 1902.	Normal rainfall for period, 1st May to 30th November.	Variation from normal of period, 1st May to 30th November 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53		55
																				0·01	0·19	—0·18					VI.-Upper Sub-Himalayas.		
								4	N 45° W	0·4	0·4	1·7	— 76	78	·405	0·5	0	0·27	−0·27	0	0·18	− 0·18	40·09	44·81	− 4·72	0	Bareilly	United Provinces (West Submontane).	2
26						1			S 45° W	0·8		1·7	— 53	75	·353	1·3	0	0·60	−0·60	0	0·40	− 0·40	56·03	82·27	−26·24	0	Dehra Dun.		
29						1		1	S 39° E	1·2		1·1	+ 9	80	·364	0·8	0	0·50	−0·50	0	0·28	− 0·28	41·32	38·53	+ 2·79	0	Roorkee.		
24			1	3		1		1	S 39° E	1·2		1·1	+ 9	80	·364	0·8	0	0·50	−0·50	0	0·28	− 0·28	41·32	38·53	+ 2·79	0	Meerut .	United Provinces, West.	22
17				1		2	9	1	S 84° W	0·9	0·9	1·3	— 31	69	·324	0·7	0	0·20	−0·20	0	0·13	− 0·13	33·58	28·52	+ 5·06	0	Delhi .	South-East Punjab.	26
9				1		1	16	3	N 38° W	1·8	1·6	2·3	— 30	50	·277	1·6	0	0·30	−0·30	0	0·11	− 0·11	26·90	24·91	+ 1·99	0	Lahore .	Central Punjab.	28
16	3			3	3		2	3	S 34° W	1·4		1·4	0	70	·343	1·7	0	0·20	−0·20	0	0·07	− 0·07	10·78	16·43	− 5·65	0	Sirsa .	South Punjab.	27
6	1	4	5	3		4	3	4	N 38° E	2·7	2·5	2·0	+ 25	64	·346	0	0	0·10	−0·10	0	0·01	− 0·01	6·83	12·37	− 5·54	0	Sirsa .	South Punjab.	27
														67	·340	1·3	0			0			15·83			0	Patiala.		
7	4	1	2	7	2		5	2	S 45° E	3·5	3·6																		
														62	·301	1·1	0	0·20	−0·20	0	0·06	− 0·06	21·88	23·25	− 1·37	0	Ludhiana .	Punjab (Submontane).	29
15		1		4			6	4	N 82° W	1·6	1·4	0·8	+ 75	61	·292	1·4	0	0·30	−0·30	0·01	0·09	− 0·08	19·51	24·98	− 5·47	0·01	Sialkot.		
18	2	3	1	1			1	4	N	1·1		1·0	+ 10	74	·343	1·1	0	0·30	−0·30	0	0·46	− 0·46	24·17	27·43	− 3·26	0	Umballa.		
25			2					3	N 3° W	1·2																			
28			2						E	1·9	1·7	1·1	+ 55	65	·268	1·9	0	0·80	−0·80	0·07	0·29	− 0·22	22·05	24·67	−2·62	0·07	Rawalpindi.	North Punjab.	31
																				0	0·13	−0·12					VII.—N.-W. Frontier Province, Indus Valley and North-West Rajputana.		
26	1				1	1		1	W	1·0	1·1	2·1	−48	68	·305	2·3	0	0·50	−0·70	0·05	0·47	− 0·42	2·61	6·15	− 3·54	0·05	Peshawar .	North Punjab.	31
15	3	6	1			3	2		N 1° E	4·5	3·8			51	·276	2·1	0	0·30	−0·30	0	0·02	− 0·02	11·75	10·32	+ 1·43	0	Khushab	West Punjab.	32
6	3	5	1	8	4	1	1	1	S 68° E	4·4	3·8			48	·272	1·4	0	0·20	−0·20	0	0·06	− 0·06	4·65	7·84	− 3·19	0	Montgomery.		
25	1	2						2	N	0·8	0·8	0·7	+ 14	60	·297	1·7	0	0	0	0	0·18	− 0·18	4·88	5·50	− 0·62	0	D. I. Khan		
15	4	3		6	2				S 89° E	1·0	1·2	1·5	— 20	58	·323	1·4	0	0·10	−0·10	0	0·07	− 0·07	4·68	5·74	− 1·06	0	Mooltan.		
27	1	2							N 27° E	0·1	0·1	1·6	— 94	68	·393	1·8	0	0·20	−0·20	0	0·11	− 0·11	2·01	2·78	− 0·77	0	Jacobabad	Sind.	47
4	22	1				1		2	N 2° W	5·4	5·6	6·1	— 8	48	·340	0·9	0	0·20	−0·20	0	0·12	− 0·12	15·93	6·19	+ 9·74	0	Hyderabad.		
8	1	14	5				1	1	N 43° E	4·4	5·5	7·9	− 30	59	·456	0·4	0	0·30	−0·30	0	0·07	− 0·07	10·96	6·72	+ 4·24	0	Kurrachee.		
5	2	1	4	4	4	4	3	3	S 5° W	3·9		2·4	+ 63	50	·311	1·7	0	0·10	−0·10	0	0·05	− 0·05	5·83	10·17	− 4·34	0	Bikaner .	West Rajputana	51
	7	7	10	1	3	1	1		N 60° E	3·8	3·3	2·1	+ 57	37	·232	0	0	0·30	−0·30	0	0·08	− 0·08	5·08	12·57	− 7·49	0	Pachpadra.		
3	3	17	4	1		1		1	N 47° E	3·2	2·9			35	·237	1·3	0	0·20	−0·20	0	0·16	− 0·16	6·90	12·59	− 5·69	0	Jodhpur.		
																				0·08	0·24	−0·14					VIII.—East Rajputana, Central India and Gujarat.		
9	1	1	2	1	2	2	7	5	N 83° W	2·0		3·0	— 33	50	·308	1·0	0	0·20	−0·20	0	0·20	− 0·20	18·69	21·68	− 5·99	0	Jaipur .	East Rajputana.	50
22	1					1	4	2	N 72° W	1·3	1·2			71	·401	0·1	0			0			29·53			0	Bharatpur.		
21	1	1	1	1	1	2		2	W					52	·331	0·2	0	0·30	−0·30	0	0·03	− 0·03	23·49	29·14	− 5·65	0	Kotah.		
30									Calm.	1·9		3·4	— 44	52	·267	0·3	0	0·20	−0·20	0	0·18	− 0·18	13·16	19·45	− 6·29	0	Sambhar.		
25				1	1	1		2	S 52° W	1·5	1·3	1·4	— 7	61	·312	1·2	0	0·40	−0·40	0	0·20	− 0·20	16·91	20·58	− 3·67	0	Ajmer.		
30									Calm.	0·3	0·3			64	·358	0·5	0	0·50	−0·50	0			21·24			0	Udaipur.		
		15	11	2				2	N 64° E	4·9		7·5	— 35	40	·310	0·5	0	0·18	−0·18	0	0·17	− 0·17	13·43	23·78	−10·35	0	Deesa.		
	1	1	5	7	2	10	2	2	S 1° E	5·9	5·0	4·7	+ 6	58	·519	0·2	0	0·30	−0·30	0	0·12	− 0·12	9·98	14·11	− 4·13	0	Bhuj .	Kathiawar and Cutch.	48
		10	11	1	1	4	2	1	N 76° E	3·9*	4·6*			51	·393	0·7	0			0			10·24			0	Jamnagar.		
	2	1	23	2			2		N 86° E	4·1	4·1	4·9	— 16	47	·386	0·3	0	0·50	−0·50	0	0·33	− 0·33	25·07	27·95	− 2·88	0	Rajkot.		
	2	15	13						N 62° E	6·3	6·4	5·0	+ 44	58	·525	1·0	0	0·30	−0·30	0	0·59	− 0·59	16·42	18·14	− 1·72	0	Veraval.		
	6	16	7					1	N 44° E	9·9				66	·630	0·7	0			0			12·97			0	Dwarka.		
	4	5		1	1	2	1	16	N 31° W	4·9	4·6			52	·415	1·3	0	0·40	−0·40	0	0·47	− 0·47	21·55	19·46	+ 2·09	0	Bhavnagar Para.		
11		2	1	2	4	4	4	2	S 39° W	1·1	1·1	1·0	+ 10	77	·405	1·1	1	0·70	+0·30	0·30	0·27	+ 0·03	41·20	42·95	− 1·75	0·27	Nowgong .	Central India .	49
16	1	3	10						N 76° E	2·6	2·1	2·0	+ 5	67	·437	2·8	2	0·50	+1·50	1·29	0·35	+ 0·94	28·73	32·96	− 4·23	0·93	Indore.		

* Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 229 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
49	Central India	Neemuch	1,630	28·451	+·053	30·102	28·561	21st	28·314	1st	·247	64·1	84·6	+0·1	53·1	?	68·9	?	31·5	89·0	7th	49·1	18th	39·9
45	Gujarat	Surat*	39	30·018	+·043	30·000	30·109	24th	29·853	1st	·256	73·6	92·3	+1·6	66·5	+3·7	79·4	+2·7	25·8	95·7	8th	60·0	25th	35·7
		Ahmedabad*	163	29·907	+·043	30·023	30·015	21st	29·754	1st	·261	73·2	92·2	+0·7	65·8	0	79·0	+0·4	26·4	95·2	6th & 7th,	61·1	30th	35·1
22	United Provinces, West.	Agra	555	29·519	?	30·062	29·648	21st	29·375	14th	·273	63·7	84·3	−0·1	57·3	+1·4	70·8	+0·7	27·0	89·0	4 days	51·9	22nd	37·1
21	United Provinces, Central,	Jhansi	858	29·227	+·059	30·079	29·342	21st	29·106	2nd	·236	66·5	85·1	−0·2	60·5	+1·9	72·8	+0·9	24·6	90·2	6th & 8th,	56·2	27th & 30th.	34·0
	IX.—Deccan				+·045								83·1	−1·3	59·4	−0·2	71·3	−0·8	23·8					36·7
38	Bombay (Deccan)	Belgaum	2,539	27·479	+·040	29·980	27·553	21st	27·345	1st	·208	69·5	80·4	−1·7	61·8	+0·7	71·1	−0·5	18·6	84·3	6th	53·4	12th	30·9
		Sholapur	1,590	28·446	+·040	30·018	28·538	24th	28·288	1st	·250	71·2	84·8	−2·7	63·1	+0·8	74·0	−1·0	21·7	88·7	5th	53·5	26th	35·2
		Poona	1,840	28·197	+·028	30·037	28·286	24th	28·035	1st	·251	65·8	85·6	−0·7	59·0	?	72·3	?	26·6	90·5	5th	50·0	26th	40·5
		Bijapur	1,946	28·090	+·034	30·016	28·175	21st	27·940	1st	·235	70·1	84·3	−1·3	62·1	+1·1	73·2	−0·1	22·2	87·9	5th	51·2	24th	36·7
40	Khandesh	Malegaon	1,430	28·615	+·029	30·045	28·716	22nd	28·434	1st	·282	66·6	84·5	−2·6	58·2	+1·1	71·4	−0·8	26·3	88·9	6th & 7th.	50·7	28th	38·2
		Ahmednagar	2,152	27·910?	+·041?	30·052?	28·005	22nd	27·745	1st	·260	68·1	82·4	−2·9	57·7	+1·5	70·1	−0·7	24·7	89·4	5th	46·4	25th & 26th.	43·0
41	Berar	Akola	930	29·138	+·048	30·053	29·240	24th	28·972	1st	·268	67·1	86·2	−0·8	57·7	+0·3	72·0	−0·3	28·5	90·9	3rd	48·9	24th	42·0
		Amraoti	1,215	28·853	+·053	30·054	28·955	21st	28·703	1st	·252	70·8	85·1	−1·2	63·1?	?	74·1?	?	22·0	88·2	3rd & 4th,	56·0	23rd	32·2
42	Central Provinces (West).	Khandwa	1,044	29·025	+·050	30·067	29·125	21st	28·845	1st	·280	65·4	85·8	−1·0	57·1	+0·9	71·5	−0·1	28·7	89·2	7th	49·6	23rd	39·6
		Hoshangabad	1,006	29·085	+·056	30·097	29·175	22nd	28·934	1st	·241	62·9	80·8	−3·5	56·7	−0·6	68·8	−2·1	24·1	88·7	4th & 15th.	49·8	24th	33·9
		Nagpur	1,025	29·046	+·058	30·065	29·153	21st	28·907	1st	·246	66·8	85·4	+0·4	59·6	−0·7	72·5	−0·2	25·8	91·1	4th	53·7	9th	37·4
43	Central Provinces (Central).	Chanda	634	29·447	?	30·050	29·533	21st	29·315	1st	·218	67·7	86·5	+1·3	58·1	−1·2	72·3	+0·1	28·4	92·2	5th	49·1	24th	43·1
		Seoni	2,033	28·033	+·050	30·077	28·140	21st	27·906	1st	·234	64·1	81·2	−0·1	54·7	−0·7	68·0	−0·4	26·5	85·8	4th	47·5	26th	38·3
		Jubbulpore	1,327	28·736	+·045	30·086	28·851	21st	28·596	1st	·255	59·4	79·5	−2·4	51·7	−1·4	65·6	−1·9	27·8	83·4	7th	45·4	23rd	38·0
		Saugor	1,807	28·269	+·060	30·087	28·382	21st	28·141	1st	·241	65·9	79·0	−3·0	58·5	+1·3	68·8	−0·9	20·5	83·4	7th & 8th,	53·1	26th	30·3
49	Central India	Sutna	1,040	29·029	+·047	30·082	29·144	21st	28·909	1st	·235	61·2	79·6	−1·5	54·8	+0·9	67·2	−0·3	24·8	83·4	5 days	48·3	24th	35·1
44	Central Provinces (East).	Raipur	970	29·094	+·050	30·052	29·214	21st	28·963	1st	·251	67·3	84·3	+1·1	56·2	−4·5	70·3	−1·7	28·1	91·8	4th	49·4	24th	42·4
		Sambalpur	486	29·603	+·055	30·059	29·708	21st	29·480	1st	·228	67·4	84·9	+1·1	57·4	−4·9	71·2	−1·9	27·5	91·6	5th	50·1	27th	41·5
39	Hyderabad (North).	Aurangabad	1,905	26·155		30·040	28·236	22nd & 24th.	27·988	1st	·248	70·2	82·3		57·9		70·2		24·4	87·3	5th	49·2	25th	38·1
		Indur	...	28·775			28·861	22nd	28 646	1st	·215	68·9	82·9		59·9		71·4		23·0	87·8	5th	50·1	26th	37·7
		Bidar	2,165	27·873		30·011?	27·961	21st & 22nd,	27·720	17th	·241	70·8	80·3		63·1		71·7		17·2	85·2	7th	57·5	24th	27·7
53	Hyderabad (South).	Gulbarga	1,503	28·537	+·031	30·020	28·635	21st	28·393	1st	·242	71·1	85·3	−1·7	62·7	+0·1	74·0	−0·8	22·6	89·6	5th	52·2	26th	37·4
		Raichur	1,326	28·707	+·041	30·009	28·803	21st	28·560	1st	·243	72·7	84·1	−2·0	67·2	?	75·7	?	16·9	89·1	5th	58·2	26th	30·9
		Hyderabad (Deccan).	1,690	28·352	?	30·031	28·445	21st	28·217	1st	·228	68·5	81·6	−2·2	62·7	+0·6	72·1	−0·5	18·9	86·4	6th	53·3	24th	33·1
		Secunderabad	1,787	28·255	+·045	30·034	28·345	21st	28·123	1st	·222	67·8	82·3	−1·5	62·7	+0·6	72·5	−0·5	19·6	87·6	6th	52·7	24th	34·9
		Hanumkonda	871	29·177		30·019	29·267	21st	29·031	1st	·236	70·9	84·2		63·6		73·9		20·6	90·0	6th	55·2	24th & 25th.	34·8
	X.—West Coast				+·020								87·3	+0·2	74·1	+1·9	80·7	+1·1	13·2					21·1
37	Konkan	Bombay	37	29·993	+·031	29·970	30·086	24th	29·832	1st	·254	77·7	88·6	+1·7	75·8	+2·5	82·2	+2·1	12·8	91·5	9th	72·5	26th & 30th.	19·0
		Ratnagiri	110	29·905	+·047	29·954	29·990	24th	29·777	1st	·213	78·3	90·2	−0·3	71·7	+1·7	81·0	+0·7	18·5	94·9	8th	64·9	13th & 26th.	30·0
		Mormugao	60	29·947	+·022	29·942	30·016	21st	29·825	1st	·191	76·6	86·2	−0·8	74·2	+1·4?	80·2	+0·3?	12·0	88·5	8th	67·8	11th	20·7
		Goa	199									77·7	85·5	−1·9	72·8	+2·6	80·2	+0·4	10·7	89·0	8th	69·0	13th	20·0
		Karwar	44	29·950	+·024	29·926	30·023	22nd	29·845	1st	·178	75·7	88·2	+0·8	71·6	+2·2	79·8	+1·5	16·6	91·8	8th	62·5	12th & 13th,	29·3
33	Malabar	Cochin	10	29·964	+·015	29·902	30·021	7th	29·884	1st	·137	79·0	89·1	+1·6	75·3	+0·9	82·2	+1·3	13·8	92·2	30th	73·7	4 days	18·5
		Calicut	27	29·942	+·008	29·898	30·009	21st	29·853	1st	·156	78·8	87·3	−0·1	74·1	+1·0	80·7	+0·5	13·2	89·3	16th	72·0	13th & 25th.	17·3
		Mangalore	65	29·899	−·003	29·896	29·965	21st	29·810	1st	·155	78·9	87·6	−0·7	74·2	+1·4	80·9	+0·4	13·4	91·2	29th	68·5	12th	22·7
		Trivandrum	198	29·757	+·012	29·898	29·846	7th	29·695	1st	·151	77·5	82·9	+0·3	74·9	+2·8	78·9	+1·6	8·0	85·5	23rd	73·0	4 days	12·5

* Observation of 29 days.

I—*continued.*

in India, Burma, etc., in November, 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th November 1902.	Normal rainfall for period, 1st May to 30th November.	Variation from normal of period, 1st May to 30th November 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
11	2	12	2	1			1	1	N 42° E	4·2	3·8	7·5	− 49	62	·378	0·6	0	0·50	−0·50	0	0·19	−0·19	27·64	29·29	− 1·65	0	Neemuch.	Central India	49
	5	5	16	3					N 74° E	4·9	4·6	5·9	− 22	61	·523	0·8	0	0·40	−0·40	0	0·16	−0·16	53·74	43·89	+ 9·85	0	Surat	Gujarat	44
	3	10	14	1				1	N 65° E	6·2	10·2			44	·366	0·5	0	0·30	−0·30	0	0·38	−0·38	27·90	32·94	− 5·04	0	Ahmedabad.		
15						12		3	S 60° W	1·8	2·1	2·5	− 16	54	·319	0·4	0	0·10	−0·10	0	0·11	−0·11	22·57	26·92	− 4·35	0	Agra	United Provinces, West.	22
11						14	1	4	S 63° W	2·2	2·4	1·8	+ 33	65	·425	0·3	0	0·10	−0·10	0	0·13	−0·13	32·75	36·86	− 4·11	0	Jhansi	United Provinces, Central.	21
																				1·31	0·79	+0·51					IX.—Deccan.		
5		7	12	6					N 88° E	9·8		11·7	− 16	74	·541	4·3	3	2·20	+ 0·80	2·54	1·76	+ 0·78	44·86	47·61	− 2·75	1·74	Belgaum	Bombay (Deccan).	38
1		8	12	8				1	N 88° E	8·3	10·0	7·7	+ 30	61	·482	5·1	3	1·50	+ 1·50	0·94	1·19	− 0·25	25·87	29·76	− 3·89	0·41	Sholapur.		
	2	3	6		1		3	5	N 14° E	7·6	8·6	5·8	+ 48	74	·491	2·7	3	1·70	+ 1·30	0·51	1·06	− 0·55	21·78	26·88	− 5·10	0·18	Poona.		
	1	11	10	6	1	1			N 82° E					67	·506	5·0	0	2·10	− 2·10	0·11	1·25	− 1·14	15·28	23·19	− 7·91	0·05	Bijapur.		
	6	5	2	1	2	3	5	6	N 30° W	2·4	2·8	4·0	− 30	65	·455	5·5	4	1·00	+ 3·00	2·42	0·50	+ 1·92	20·18	23·54	− 3·36	1·05	Malegaon	Khandesh	40
			1	8	1	1		4	S 35° E	3·2	3·9			64	·456	3·0	2	1·50	+ 0·50	0·87	0·59	+ 0·28	26·47	20·86	+ 5·61	0·67	Ahmednagar.		
15									E	2·1	2·1	3·4	− 38	64	·441	2·2	1	0·80	+ 0·20	0·27	0·54	− 0·27	26·11	32·28	− 6·17	0·22	Akola	Berar	41
20		2	6	2					N 65° E	6·3	5·6	3·0	+ 87	52	·404	2·2	1	0·60	+ 0·40	0·54	0·59	− 0·05	27·58	32·95	− 5·37	0·54	Amraoti.		
	1	16	11	1	1				S 79° E	3·2		2·6	+ 23	68	·435	1·9	3	0·60	+ 2·40	2·55	0·23	+ 2·32	32·79	30·36	+ 2·43	1·13	Khandwa	Central Provinces (West).	2
13		1	11	4		1			N 52° E	2·8	2·9	1·9	+ 57	77	·453	1·5	3	0·50	+ 2·50	3·57	0·45	+ 3·12	34·18	50·69	−16·51	2·45	Hoshangabad.		
		25		4				1	N 23° E	3·7		4·0	− 8	59	·401	2·1	1	0·90	+ 0·10	0·46	0·81	− 0·35	26·72	47·24	−20·52	0·45	Nagpur.		
	15	13		1	1				E	3·1	2·8	1·8	+ 56	68	·482	1·8	1	1·00	0	0·45	0·96	− 0·51	28·85	52·84	−23·99	0·42	Chanda	Central Provinces (Central).	43
26		1	2	1					N 36° E	3·4		2·6	+ 31	62	·378	1·4	1	0·90	+ 0·10	0·35	0·61	− 0·26	28·85	52·36	−23·51	0·35	Seoni.		
	7	17	3	1				2	S 18° E	1·7	1·5	1·8	− 17	81	·426	1·2	1	0·60	+ 0·40	0·76	0·48	+ 0·28	36·52	56·92	−20·40	0·65	Jubbulpore.		
7	1	2	1	7	8	3	1		S 40° E	2·8	3·2	2·3	+ 39	54	·343	1·1	2	0·50	+ 1·50	4·38	0·33	+ 4·05	35·74	46·44	−10·70	4·14	Saugor.		
		3	8	6	9	4			N 64° W	1·2	1·3	3·2	− 59	76	·416	1·1	2	0·70	+ 1·30	1·09	0·34	+ 0·75	34·07	43·34	− 9·27	0·92	Sutna	Central India	49
12	2		1	2		1	6	6	N 50° E	2·2	2·0	3·3	− 39	62	·422	0·8	0	0·90	− 0·90	0·05	0·46	− 0·41	27·33	48·67	−21·34	0·03	Raipur	Central Provinces (East).	44
5	1	11	5	2	1		2	3	N 76° E	4·7	4·6	1·4	+229	70	·479	1·5	0	1·00	− 1·00	0	0·59	− 0·59	51·00	64·69	−13·69	0	Sambalpur.		
		12	6	2	4	3		3	S 74° E	6·1	6·0			65	·484	2·1	4	1·00	+ 3·00	4·82	0·59	+ 4·23	31·91	29·25	+ 2·66	2·27	Aurangabad.	Hyderabad (North).	39
10			13	7					E	3·4	2·8			73	·528	2·8	1	1·40	− 0·40	0·33	0·95	− 0·62	31·96	38·09	− 6·13	0·30	Indur.		
28		1		1					N 83° E	7·3	6·1			75	·570	1·1	2	2·20	− 0·20	0·57	1·30	− 0·73	25·63	37·51	−11·88	0·27	Bidar.		
		10	14	5	1				N 88° E	7·4	7·1			71	·554	3·2	2	1·50	+ 0·50	1·62	0·47	+ 1·15	26·34	29·82	− 3·48	1·45	Gulbarga	Hyderabad (South).	53
3		6	17	3	1				N 88° E	7·8	7·4			70	·577	1·2	2	1·80	+ 0·20	0·88	0·76	+ 0·12	23·60	29·40	− 5·80	0·60	Raichur.		
4	1	6	13	5	1				S 77° E	3·3	3·2			79	·561	3·7	2			0·72	1·48	− 0·56	24·16	29·93	− 5·77	0·48	Hyderabad (Deccan).		
20			7	3					N 73° E	4·6		3·5	+ 31	80	·552	3·3	2	2·50	− 0·50	1·54	1·48	+ 0·06	25·37	29·93	− 4·56	1·00	Secunderabad.		
10	1	9	6	4					N 10° W	4·6†	3·9†			73	·569	4·0	1	1·90	− 0·90	1·73			21·49			1·67	Hanumkonda.		
17	4	1		2	2			4												3·44	2·78	+0·66					X.—West Coast.		
		12	16	2					N 75° E	9·2		9·9	− 7	71	·687	2·2	0	0·60	−0·60	0·01	0·49	− 0·48	71·16	74·94	− 3·78	0·01	Bombay	Konkan	27
		2	22	3	1				S 86° E	9·9	9·8	9·0	+ 9	59	·578	2·4	3	1·00	+2·00	1·04	0·42	+ 0·62	94·72	107·03	−12·31	0·39	Ratnagiri.		
2		10	16	3	1				N 81° E	7·3†				77	·713	3·4	3			3·30	1·16	+ 2·14	124·98	92·34	+32·64	2·90	Mormugao.		
		11	18		1				S 71° E					72	·687	3·8	5			4·84	1·14	+ 3·70	128·52	97·80	+30·72	3·07	Goa.		
		6	14						N 71° E	3·2				74	·655	2·4	3	2·50	+0·50	0·84	2·08	− 1·24	148·62	123·05	+25·57	0·44	Karwar.		
3	2																												
2	11	15		1			1		N 49° E	3·8				83	·839	5·0	10	7·70	+2·30	4·64	6·25	− 1·61	111·17	105·21	+ 5·96	1·03	Cochin	Malabar	33
3		14	6	2					N 64° E	5·8	7·3			83	·823	5·8	7	5·50	+1·50	8·19	4·72	+ 3·47	127·60	108·84	+18·76	2·55	Calicut.		
9		1	12	8					S 75° E	1·7		3·0	−43	76	·756	5·2	6	3·80	+2·20	3·17	2·65	+ 0·82	147·77	121·69	+26·08	0·87	Mangalore.		
18		6	4				1	1	N 53° E	2·6				86	·815	7·3	8	9·10	−1·10	4·64	6·12	− 1·48	49·05	52·75	− 3·70	1·22	Trivandrum.		

† Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 229 Stations

Number of district.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure 8 A.M., in inches.								Temperature of Air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	XI.—South India				+·034								84·1	−1·0	70·3	+1·0	77·2	0	13·9					24·8
57	Madras (South)	Pamban	37	29·957		29·922	30·037	21st	29·855	1st	·182	79·4	84·3		75·6		80·0		8·7	88·3	4th	73·2	15th & 28th.	15·1
		Tinnevelly	168	29·828	+·019	29·928	29·912	22nd	29·724	1st	·188	77·6	86·1	−2·6	74·5	−0·1	80·3	−1·4	11·6	91·2	1st	71·9	23rd & 24th.	19·3
		Madura	447	29·546	+·036	29·934	29·637	21st	29·433	1st	·204	78·0	86·4	−0·9	72·8	+0·3	79·6	−0·3	13·6	90·9	1st & 7th.	70·0	12th & 24th.	20·9
		Periyakulam	945	29·048			29·139	21st	28·948	1st	·191	74·6	84·9		70·5		76·9		14·4	87·7	5th & 15th.	64·9	24th	22·8
34	Madras (South Central)	Salem	940	29·074	+·026	29·967	29·170	22nd	28·965	1st	·205	76·0	86·2	−1·1	70·0	+1·5	78·1	+0·2	16·2	91·2	8th	64·4	12th	26·8
		Coimbatore	1,348	28·649	+·032	29·959	28·723	21st	28·545	1st	·177	74·3	84·7	−1·5	69·9	+1·0	77·3	−0·3	14·8	89·4	15th	63·8	12th	25·6
35	Coorg	Mercara	3,781	26·287	+·030		26·357	7th	26·208	1st	·149	64·2	75·0	−0·9	60·7	+0·6	67·8	−0·2	14·3	79·0	5th	55·1	11th	23·9
36	Mysore	Chitaldroog	2,405	27·614	+·019	29·970	27·703	21st	27·494	1st	·209	70·5	81·1	−1·0	65·4	+1·4	73·3	+0·2	15·7	85·6	6th	56·9	25th	28·7
		Bangalore	3,021	27·022	+·031	29·975	27·110	21st	26·926	1st	·184	68·2	79·4	+0·1?	63·5	+1·6	71·5	+0·9?	15·9	84·3	6th	56·9	11th	27·4
		Hassan	3,091	26·950	+·015	29·974	27·032	21st	26·858	1st	·174	69·6	77·8	−2·0	62·6	?	70·3	?	15·2	81·5	6th	53·3	12th	28·2
		Mysore	2,518	27·503	+·017	29·961	27·582	21st	27·406	1st	·176	71·8	82·2	−0·3	65·5	+1·4	73·9	+0·6	16·7	86·1	6th & 7th.	59·4	12th & 13th.	26·7
55	Madras (East Coast, South)	Negapatam	31	29·955	+·027	29·915	30·033	21st	29·851	1st	·182	78·8	83·7	−0·4	75·9	+1·8	79·8	+0·7	7·8	88·2	2nd, 3rd & 5th	70·0	12th	18·2
		Cuddalore	12	29·996	+·032	29·937	30·100	21st	29·881	1st	·219	76·4	83·3	−1·5	73·4	+1·8	78·4	+0·2	9·9	87·1	5th & 6th.	69·2	13th	17·9
		Trichinopoly	255	29·746	+·033	29·938	29·854	21st	29·640	1st	·214	77·3	85·4	−1·7	72·8	+0·8	79·1	−0·5	12·6	91·0	3rd	68·9	24th	22·1
		Madras	22	29·990	+·033	29·943	30·088	21st	29·874	1st	·214	78·3	81·4	−0·7	74·0	+1·7	79·2	+0·5	10·4	89·0	8th	69·5	12th	19·5
		Vellore	707	29·296		29·955	29·397	21st	29·168	1st	·229	75·3	81·1		72·6*		78·4*		11·5	89·4	6th	62·4	13th	27·0
56	Madras (East Coast, Central)	Nellore	71	29·967	+·048	29·972	30·065	21st	29·826	1st	·239	76·7	83·9	−2·8	72·8	+1·2	78·3	−0·8	11·1	88·3	4 days	67·1	25th	21·2
		Masulipatam	15	30·039	+·059	29·989	30·140	21st & 24th	29·892	1st	·248	76·1	84·3	−0·8	71·8	+0·5	78·0	−0·2	12·5	89·0	6th	61·7	25th	24·3
54	Madras Central	Cuddapah	433	29·593	+·032	29·977	29·689	24th	29·461	1st	·228	76·2	87·6	−0·9	69·8	+0·5	78·7	−0·2	17·8	96·2	5th	61·4	11th & 25th.	34·8
		Kurnool	958	29·092†	+·056†	30·016†	29·189	21st	28·956	1st	·233	73·1	87·0	−1·1	65·6	+1·6	76·3	+0·3	21·4	91·2	5th & 6th.	57·3	24th	33·9
		Bellary	1,475	28·550	+·040	29·999	28·640	21st	28·394	1st	·246	71·9	85·3	−0·4	67·2	+1·6	76·8	+0·6	19·1	91·0	6th	59·1	25th	31·9
52	Madras (East Coast, North)	Cocanada	26	30·023?	+·043?	29·984?	30·125	21st	29·901	13th	·224	76·0	83·3	−0·2	71·0	+0·5	77·2	+0·2	12·3	89·1	6th	64·0	24th & 25th.	25·1
		Waltair (Vizag.)	226	29·827	+·051	29·997	29·933	21st	29·708	12th	·225	77·7	84·2	−0·3	73·3	?	78·8	?	10·9	87·4	5th & 6th.	65·9	25th	21·5
		Gopalpur	21	30·047	+·045	30·008	30·159	21st	29·940	1st	·219	73·3	84·5	+1·1	65·9	−0·9	75·2	+0·1	18·6	88·3	6th	56·6	24th	31·7
	XII.—Hill Stations.																							
48	Baluchistan	Pishin											66·4		32·1		49·3		34·3	74·3	9th & 10th.	22·0	14th	52·3
		Quetta	5,502	24·802	+·033		24·887	24th	24·735	15th	·152	45·3	66·3	+1·5	37·5	+5·4	51·9	+3·5	28·8	75·2	10th	29·3	14th	45·9
		Kelat‡										49·5	67·2	−0·3?	20·1	?	43·7	?	47·1	77·9	10th	9·2	14th	68·7
		Chaman	4,311	25·858	+·020		25·951	24th	25·751	16th	·200	55·9	69·6	+0·2	47·6	+2·8	58·6	+1·5	22·0	80·8	9th	36·6	14th	44·2
30	Punjab and North-West Frontier Provinces	Leh	11,503	19·512	+·034		19·964	22nd	19·556	12th	·408	26·5	44·8	−2·8	20·8	+0·3	32·8	−1·3	24·0	53·6	1st	11·5	16th	42·1
		Srinagar	5,204	25·092	+·058		25·223	24th	24·825	12th	·398	37·6	56·9	−3·4	34·6	+3·0	45·8	−0·2	22·3	67·9	8th	29·1	27th & 30th.	38·8
		Sonemarg		21·927			22·025	22nd	21·721	14th	·304	25·6	47·8		19·6		33·7		28·2	70·3	10th	5·1	15th	65·2
		Skardu		23·055			23·250	22nd	22·727	12th	·523	33·8	52·3		30·1		41·2		22·2	60·0	5th	23·1	22nd & 27th.	36·9
		Dras		20·931			21·100	21st	20·657	12th	·443	16·7	36·4		9·5		23·0		26·9	59·3	1st	−9·9	15th	69·2
		Gilgit	4,890	25·362			25·537	24th	25·037	12th	·500	46·4	60·7	−1·3	42·2	−0·5	51·5	−0·9	18·5	69·4	5th	36·5	23rd	32·9
		Chitral		24·696			24·850	24th	24·500	12th	·350	41·7	61·1		38·1		49·6		23·0	71·3	9th	34·0	14th & 30th.	37·3
		Killa Drosh										45·5	60·3		42·8		51·6		17·5	70·9	9th	37·8	28th	33·1
		Para Chinar	6,000	24·609			24·727	24th	24·478	12th	·249	48·9	61·3		40·0		50·7		21·3	69·5	10th	34·4	14th & 18th.	35·1
		Cherat		25·853	+·038		25·931	24th	25·732	13th	·199	54·6	63·5	−3·7	49·2	+0·1	56·4	−1·8	14·3	75·3	1st	38·0	14th	37·3

* Mean of 27 days. † Mean of 29 days. ‡ Observations of 26 days.

l—continued.

in India, Burma, etc., in November 1902—continued.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th November 1902.	Normal rainfall for period, 1st May to 30th November.	Variation from normal of period, 1st May to 30th November 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				5·97	6·05	—0·08							
																											XI.—South India.		
1	12	6	5	2	1			3	N 29° E	10·1	10·7			85	·851	5·5	18	12·00	+ 6·00	13·85	11·89	+ 1·96	29·02	23·48	+ 5·54	2·25	Pamban	Madras (South).	57
	9	12	2			1	1	5	N 14° E	3·5	3·5			85	·808	8·5	15	9·90	+ 5·10	10·04	7·79	+ 2·25	25·38	18·07	+ 7·31	3·17	Tinnevelly.		
1	13	11	2	1				2	N 28° E	2·7	2·7	3·8	− 29	80	·779	5·5	11	7·00	+ 4·00	5·87	4·71	+ 1·16	35·82	27·96	+ 7·86	2·58	Madura.		
15		2	1	2	2	1	6	1	S 63° W	1·9	2·0			84	·724	6·6	9	7·40	+ 1·60	7·09	4·81	+ 2·28	24·91	21·28	+ 3·63	2·43	Periya Kulam		
17	1	5	5			1	1		N 64° E	2·8	2·5	3·3	− 24	83	·758	6·2	5	5·70	− 0·70	2·00	3·93	− 1·93	41·94	36·13	+ 5·81	0·69	Salem	Madras (South Central).	34
		1	29						N 89° W	2·7	2·4	2·6	− 8	86	·738	5·4	11	6·60	+ 4·40	3·76	3·38	+ 0·38	29·53	16·96	+12·57	0·71	Coimbatore.		
	1	12	16	1					N 71° E	6·3	5·9	3·7	+ 59	92	·571	7·9	6	4·90	+ 1·10	2·28	2·86	− 0·58	106·18	121·79	−15·61	0·78	Mercara	Coorg.	35
3		5	14	7			1		S 84° E	6·6	5·7			80	·604	5·9	4	2·80	+ 1·20	2·69	2·85	− 0·16	25·88	23·85	+ 2·03	1·43	Chitaldroog	Mysore.	36
1	1	13	13	2					N 70° E	8·3	7·2	3·7	+ 95	85	·593	6·8	2	4·20	− 2·20	0·44	3·33	− 2·89	28·63	32·61	− 3·98	0·18	Bangalore.		
2		10	14	4					N 81° E	3·2	2·8			81	·593	7·2	5	4·00	+ 1·00	2·68	2·65	+ 0·03	34·97	31·37	+ 3·60	0·82	Hassan.		
1	1	13	11	3	1				N 72° E	7·7	8·3			80	·617	8·5	3	4·10	− 1·10	0·64	2·28	− 1·64	25·22	27·29	− 2·07	0·27	Mysore.		
3	5	13	1		1	1	1	5	N 17° E	7·3	6·4	5·2	+23	85	·941	6·8	17	13·30	+ 3·70	21·65	15·99	+ 5·66	42·14	39·74	+ 2·40	3·68	Negapatam	Madras (East Coast South).	56
21	3	2						4	N 11° W	1·7	2·1			91	·839	9·0	19	11·80	+ 7·20	17·16	12·74	+ 4·42	49·73	41·75	+ 7·98	2·95	Cuddalore.		
21		9							N 45° E	2·3		4·2	− 45	86	·803	7·2	12	8·00	+ 4·00	5·29	5·09	+ 0·20	27·92	26·25	+ 1·67	2·05	Trichinopoly.		
	13	7	3			1		6	N 8° E	6·6		6·8	− 3	84	·819	5·9	14	13·00	+ 1·00	10·53	11·08	− 3·55	43·91	43·01	+ 0·90	2·46	Madras.		
14		1	2	4	1	1	2	5	S 71° W	1·8	1·8			86	·752	6·3	10	7·50	+ 2·50	3·44	5·89	− 2·45	38·52	34·07	+ 4·45	0·75	Vellore.		
8	10	1					1	10	N 22° W	5·9				86	·800	6·9	16	8·60	+ 7·40	16·48	7·82	+ 8·66	48·92	27·96	+20·96	3·32	Nellore	Madras (East Coast, Central).	55
3	18	8	1						N 16° E	6·9	6·6	5·5	+ 20	85	·768	4·1	4	3·80	+ 0·20	4·29	6·30	− 2·01	45·96	39·25	+ 6·71	2·40	Masulipatam		
	2	13	1	11	1	1	1		N 84° E					81	·731	4·8	2	4·80	− 2·80	0·45	4·01	− 3·56	25·43	30·74	− 5·31	0·28	Cuddapah	Madras (Central).	54
11	3	7	4	3	1		1		N 54° E	3·3				77	·636	3·2	1	2·30	− 1·30	1·34	1·03	+ 0·31	18·85	26·84	− 7·99	1·27	Kurnool.		
8	4	4	7	5	2				N 84° E	2·6	2·8	3·3	− 15	75	·595	5·8	4	2·60	+ 1·40	2·56	1·98	+ 0·58	21·58	18·63	+ 2·95	1·65	Bellary.		
1	10	16	1					2	N 26° E	11·1	9·3			76	·690	4·2	5	3·90	+ 1·10	3·67	6·10	− 2·43	43·65	37·74	+ 5·91	1·32	Cocanada	Madras (East Coast, North).	52
2		26				2			N 45° E	13·1				59	·571	5·4	3	3·70	− 0·70	1·22	6·11	− 4·88	32·01	40·50	− 8·49	0·60	Waltair (Vizag.)		
	16							14	N 21° W	10·3	10·1	7·0	+ 44	75	·619	0·8	0	2·80	— 2·80	0·14	4·34	− 4·20	29·91	44·84	−14·93	0·08	Gopalpur.		
																											XII.—Hill Stations.		
																	1	1·30	− 0·30	0·44	0·52	− 0·08	0·86	1·07	− 0·21	0·35	Pishin	Baluchistan.	48
29				1					S 45° E	1·4	1·5	2·7	− 44	69	·213	1·9	1	1·60	− 0·60	0·59	0·31	+ 0·28	2·22	2·72	− 0·50	0·50	Quetta.		
	3		2		21				S 6° E					57	·203		1	0·90	+ 0·10	0·46	0·31	+ 0·15	2·05	2·04	+ 0·01	0·40	Kalat.		
14			1	6	8	1			N 20° E	2·4	2·6			48	·214	3·5	0	1·90	− 1·90	0·15	0·26	− 0·11	1·10	0·58	+ 0·52	0·06	Chaman.		
		2	5		5	14	4		S 27° W	1·9				54	·082	3·6	1	0·20	+ 0·80	0·14	0·02	+ 0·12	1·57	1·77	− 0·20	0·11	Leh	Punjab and N.-W. Frontier Province.	30
13	2	1	3	4	2	1	3	1	S 45° E	2·2	2·4			88	·200	4·3	4	1·20	+ 2·80	1·80	0·46	+ 1·34	13·80	11·71	+ 2·09	0·56	Srinagar.		
15		4	3	1	1		6		N 52° E	4·5	4·1			83	·120	3·9	6			5·50			22·83			2·50	Sonemarg		
23		1	2		1	2	1		S 11° E	2·4	2·4			78	·149	4·2	0	0·30	— 0·30	0·07	0·08	− 0·01	1·48	3·03	− 1·55	0·07	Skardu.		
27					1	2			S 31° W	2·0	2·1			92	·095	3·9	5	2·70	+ 2·30	1·22	1·14	+ 0·08	5·65	7·59	− 1·94	0·31	Dras.		
27			1			2			S 16° W	2·9	2·6			41	·131	7·0	0	0·10	— 0·10	0·09	0·05	+ 0·04	2·59	2·60	− 0·01	0·09	Gilgit.		
30									Calm					92	·246	2·7	4			0·87			3·78			0·37	Chitral.		
24			5		1				S 79° E					57	·173	3·1	1			0·34			6·21			0·20	Killa Drosh.		
27	3								N	1·8				54	·186	2·1	1	2·00	− 1·00	0·43	1·05	− 0·62	13·20	13·88	− 0·68	0·25	Para Chinar.		
	6	7		1		1		15	N 17° W	9·6	8·9			42	·178	1·6	2			0·23	0·12	+ 0·11	10·24	12·04	− 1·80	0·12	Cherat.		

Table

Abstract of Observations taken at 8 A.M. at 229 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of Air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
30	Punjab—(*concld.*)	Murree	6,333	23·971	+·033		24·061	24th	23·850	12th	·211	50·2	57·7	—3·2	43·2	−2·4	50·5	−2·8	14·5	65·2	10th	35·0	24th	30·2
		Poo											57·0		3·51		46·1		21·9	64·4	10th	29·8	15th	31·6
		Simla	7,224	23·234	+·048		23·311	21st	23·145	15th	·166	47·7	55·0	—1·1	44·3	—0·7	49·7	−0·9	10·7	60·4	1st	39·8	15th	20·6
25	United Provinces.	Chakrata*	7,022	23·394	+·040		23·460	21st	23·302	15th	·158	47·9	60·0	0	43·6	—0·3	51·8	−0·2	16·4	63·7	1st	38·9	15th	24·8
		Mussooree	6,705	23·675	+·042		23·747	24th	23·587	15th	·160	49·0	56·3	−1·3	44·4	—1·0	50·4	−1·2	11·9	60·7	1st	41·0	15th & 20th.	19·7
		Ranikhet	6,069	24·233	+·053		24·304	24th	24·143	15th	·161	50·8	61·7	—0·8	47·7	+0·5	54·7	−0·2	14·0	66·1	1st	45·0	16,20th & 21st.	21·1
		Muktesar	7,600	22·956			23·021	24th	22·860	15th	·161	48·9	59·1		42·4		50·7		16·7	63·6	3rd	38·0	21st	25·6
13	Bengal	Darjeeling	7,376	23·107	+·007		23·172	8th	22·978	2nd	·194	47·5	54·8	+0·6	42·0	−0·5	48·4	+0·1	12·8	62·5	1st	39·0	22nd & 23rd	23·5
	Assam Hill Tracts	Shillong	4,920	25·266			25·237	23rd	25·169	15th	·168	55·4	66,8		45·2		56·0		21·6	73·6	1st	40·0	24th	33·6
		Cherra Poonjee	4,309	25·816			25·880	21st	25·740	14th	·140	60·4	67·4		53·1		60·3		14·3	73·8	1st	49·0	15th	24·8
	Central India	Mount Abu	3,945	26.200	+·037		26·296	21st	26·066	1st	·230	66·6	73·3	—0·2	59·2	+1·3	66·3	+0·6	14·1	77·1	8th	54·4	30th	22·7
		Pachmarhi	3,528	26·597	+·044		26·694	17th	26·452	1st	·242	61·9	74·4	+1·1	50·5	—0·8	62·5	+0·2	23·9	78·1	7th	45·3	22nd & 23rd.	32·8
	South India	Wellington	6,200	24·301	+·022		24·372	21st	24·223	1st	·149	59·4	67·7	+0·4	53·4	+1·4	60·6	+0·9	14·3	71·7	2nd.	46·7	12th	25·0
		Kodaikanal	7,688	22·873			22·934	22nd	22·796	1st	·138	55·0	61·4		50·5		54·7		10·9	67·1	25th	47·2	30th	19·9
		Ootacamund		23·105			23·159	21st	23·031	1st	·128	57·0	63·9		50·0†		56·9†		13·9	68·0	1st	41·2	11th	26·8
		Dodabetta§		22·043			22·102	20th	21·969	12th	·133	54·2	55·5		46·5		51·0		9·0	61·7	12th	43·1	22nd	18·6
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·966	+·036	29·904	30·032	7th & 21st	29·874	1st	·158	77·9	84·2	−1·1	74·3	−0·4	79·2	−0·8	9·9	88·5	23rd	72·0	12th	16·5
		Colombo	40	29·934	+·017	29·899	29·997	21st	29·859	1st	·138	79·3	87·3	+0·9	74·1	0	80·7	+0·5	13·2	90·5	29th	71·5	1st & 6th,	19·0
	Persia	Meshed	3,104									42·8			38·0							27·0	10th & 12th.	
		Teheran		**26·033			26·255	11th	25·710	16th	·545	48·2	60·0	−1·5	43·3	+1·1	51·6	−0·2	16·7	75·3	5th	32·0	28th	43·3
		Ispahan		**24·316			24·476	4th	24·050	16th	·420	43·9	61·1	−0·8	32·9	−3·0	47·0	−1·9	28·2	77·8	7th	26·1	29th	51·7
		Bushire	14	30·073	—·001	30·046	30·242	24th	29·851	16th	·391	67·7	75·7	−2·4	63·9	+1·6	69·8	−0·4	11·8	87·1	8th	55·3	29th	31·8
		Bahrein	30	30·005			30·126	29th	29·860	16th	·266	75·2	82·3		61·0		71·7		21·3	91·0	9th	52·9	30th	38·1
		Jask *		30·062	—·011		30·159	21st	29·94(	1st	·219	76·1	84·2	+0·9	70·5	+1·9	77·4	+1·4	13·7	87·8	6th	67·2	20th	20·6
		Muscat	20	30·057	—·011	30·025	30·171	6th	29·929	1st	·242	78·6	80·4	+0·4	76·2†	+0·8†	78·4†	+0·6	4·2	82·6	3rd & 8th,	71·3	13th	11·3
	Arabia	Baghdad	220	29·913	—·062	30·118	30·082	18th	29·736	16th	·346	59·0	74·5	—0·2	56·3‡	+6·5	65·8‡	+3·2	18·2	83·6	7th	47·7	29th	35·9
		Bussrah		30·090			30·200	28th & 29th.	29·892	26th	·308		75·5		61·4		68·5		14·1	83·3	7th	52·0	28th & 29th	31·3
		Aden	94	29·931	—·020	29·957	30·011	15th	29·809	1st	·202	80·2	85·1	+0·2	77·0	+2·3	81·1	+1·3	8·1	93·3	4th	72·4	20th	20·9
		Perim	201	29·784	—·018	28·919	29·872	19th	29·658	2nd	·214	82·2	88·3	+1·4	79·1	+2·0	83·8	+1·7	9·2	92·7	1st	76·2	26th	16·5
	Afghanistan	Kabul										39·2	61·8	−5·7	32·0	−2·9	46·9	−4·3	29·8	77·2	5th	24·4	14th	52·8
	Central Asia	Kashgar	4,255	25·724††			25·990		25·410		·580	33·2	54·8	+2·8	29·8	+1·0	42·3	+1·9	25·0	68·1	19th	24·3	30th	43·8
	Arabian Sea Islands.	Amini Devi	13	29·974	+·014	29·915	30·050	21st	29·897	1st	·153	83·2	86·9	+1·9	75·8	+0·3	81·4	+1·1	11·1	89·3	30th	73·4	14th	15·9
		Minicoy	7	29·971		29·903	30·026	7th	29·903	1st	·123	81·7	85·9	−0·3						88·0	1st			
	Africa	Zanzibar	73	29·966	+·004	29·966	30·131	24th	29·879	1st	·252	80·4	84·6	+0·9	77·8	+0·7	81·2	+0·8	6·8	90·5	30th	73·3	24th	17·2
		Do. Dunga		29·871			29·939	8th	29·805	1st	·134	78·7	87·8		73·1		80·5		14·7	93·5	8th	69·4	2nd	24·1
	Ira 18 Settlements.	Penang	20	29·911		29·856	29·974	8th	29·816	13th	·158	81·6	88·5		74·1		81·3		14·4	90·0	12th	72·0	10th.	18·0
		Singapore	10	29·963		29·894	30·011	7th	29·879	29th	·132	83·6	87·3		70·9		79·1		16·4	90·0	9th	68·9	4th	21·1

§ P.M. Observations.
* Observations of 29 days.
† Mean of 29 day

Notes.—When a query is inserted against any reading or in the variation returns of

†† Aneroid corrected.

** A period uncorrected.

I—*concluded.*

in India, Burma, etc., in November, 1902—concluded.

Wind Direction. Number of winds from: Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Wind resultant.	Wind Velocity. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Hygrometry, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	Rainfall. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st May to 30th November 1902.	Normal rainfall for period, 1st May to 30th November.	Variation from normal of period, 1st May to 30th November 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
21	1			2	3			3	S 31° W	5·0	4·4	5·1	− 14	43	·158	1·6	3	2·10	+0·90	1·12	0·90	+ 0·22	32·90	39·80	− 6·90	0·50	Murree	Punjab—(*concld.*)	30
21			2	5	2											2·0	0			0·05	0·78	− 0·73	7·55	4·55	+ 3·00	0·03	Poo.		
11	9				10				S			1·9		44	·144	1·6	0	0·70	−0·70	0	0·61	− 0·61	34·75	52·88	−18·13	0	Simla.		
7	15	3		1	1			2	N 4° E	7·5		4·5	+ 67	55	·191	1·5	0	0·70	−0·70	0·08	0·55	− 0·47	51·77	57·88	− 6·11	0·07	Chakrata	United Provinces.	25
		3	11	3	2	2	7	2	E					62	·225	0·5	0	0·60	−0·60	0	0·81	− 0·81	82·64	84·84	− 2·20	0	Mussooree.		
21	1		4	2			2		S 83° E	1·7	1·9	1·2	+ 58	66	·216	1·5	0	0·80	−0·80	0	0·32	− 0·32	37·21	45·75	− 8·54	0	Ranikhet.		
7		4	3	8	1	1	2	4	S 72° E	3·8	3·5			55	·194	1·9	0			0			38·54			0	Muktesar.		
10	1	5	3	3		3	1	4	N 45° E	?	?	1·7	?	73	·237	2·5‡	2	0·68	+1·32	0·55	0·36	+ 0·19	144·20	116·54	+27·66	0·23	Darjeeling.	Bengal . .	13
14		1	6	4	1	4			S 48° E	1·5	1·7			71	·314	1·1	0	1·90	−1·90	0·07			74·71			0·07	Shillong .	Assam Hill Tract	8
4		6	11	3	1	2	3		S 89° E	3·7	4·3			61	·320	1·4	0	1·20	−1·20	0			381·04			0	Cherra.		
15	1	9	2				1	2	N 29° E	4·2	4·2	3·7	+14	37	·238	0·8	0	0·40	−0·40	0	0·28	− 0·28	30·14	60·73	−30·59	0	Poonjee. Mount Abu	Central India.	
18	1	2	1	6	2				S 60° E	2·4	2·5	2·5	0	67	·375	1·6	3	0·80	+2·20	1·65	0·56	+ 1·09	49·51	74·04	−24·53	0·60	Pachmarhi.		
11	3	4	3	8	1				S 86° E	2·0		2·7	−28	85	·433	7·3	16	10·50	+5·50	10·64	7·34	+ 3·30	50·41	38·68	+11·73	2·49	Wellington .	South India.	
	3	3	13	6	1	1	1	2	N 86° E	9·7				88	·380	4·5	16	11·30	+4·70	9·38	8·17	+1·21	44·66	47·72	− 3·06	1·49	Kodaikanal.		
16		1	7	5	1				S 70° E	2·7	2·5			80	·369	6·5	9	6·30	+2·70	2·76	4·00	— 1·24	46·69	39·76	+ 6·93	0·55	Ootacamund.		
														92	·389	8·5	13			6·61			52·66‖			1·08	Dodabetta.		
																											XIII.—Extra India.		
17		4				5		4	N 58° W					92	·888	5·1	23			27·20	13·57	+13·63	43·71	35·85	+ 7·86	3·58	Trincomalee	Ceylon.	
	7	11	10	1	1				N 55° E	5·8		5·8	0	87	·071	5·7	21			22·44	13·13	+ 9·31	89·02	60·83	+28·19	4·25	Colombo.		
														82	·228	5·3	1			1·55	0·51	+ 1·04	3·13	1·94	+ 1·19	1·36	Meshed .	Persia.	
7	4	11	3					2	N 35° E	1·8	2·4			71	·241	5·4	6			2·47	0·96	+ 1·51	3·73	2·03	+ 1·70	1·08	Teheran‡‡		
15	1	2	2	1		2	6	1	N 76° W	2·6	3·4			79	·228	4·1	7			4·05	0·92	+3·13	4·09	1·30	+ 2·79	1·73	Ispahan.		
1	8	9	2	4	2	1		3	N 37° E	5·6	6·7			74	·508	4·9	10			6·07	1·79	+4·28	6·45	1·87	+4·58	2·05	Bushire.		
	6		3	2	6	6	3	4	S 63° W					81	·698		1			0·10			0·25			0·10	Bahrein.		
1	3	7	13					5	N 52° E	10·3‡	11·9‡			68	·614	1·3	0			0	0·49	−0·49	0·28	0·66	− 0·38	0	Jask.		
4				17				7	S 45° E	3·5	3·6			70	·681	0·3	0			0	0·61	−0·61	1·00	1·03	− 0·03	0	Muscat.		
27					2		1		S 27° W	1·0	1·3			72	·364	3·4	4			2·04	0·92	+ 1·12	2·52	1·29	+ 1·23	0·71	Baghdad .	Arabia.	
																	5			3·12			3·40			1·74	Bussrah.		
		8	16	6					N 87° E	16·4	13·3	11·6	+15	70	·716	3·2	0			0·07	0·23	− 0·16	0·07	0·74	− 0·67	0·05	Aden.		
		5	11	14					S 76° E	21·7	19·5			72	·790	0·8	0			0·07	0·04	+ 0·03	1·42	0·95	+ 0·47	0·07	Perim.		
		1	5	5	4	12	3		S 8° W					66	·160	4·1	3			0·89	0·72	+ 0·17	2·01	2·20	− 0·19	0·39	Kabul .	Afghanistan.	
30									Calm	0·8	0·7			?	?	0·3	0			0	0·03	− 0·03	1·00	3·09	− 2·09	0	Kashgar .	Central Asia.	
3	10	9	5	1			1	1	N 32° E					76	·860	8·4	5			2·25	1·58	+ 0·67	68·07	45·32	+22·75	1·31	Amini Devi	Arabian Sea Islands.	
	2	8	7	6	1	2	4		N 85° E	4·8	4·2			82	·885	4·1	10			7·59	4·15	+ 3·44	72·90	45·73	+27·17	2·65	Minicoy.		
	1	3	9	6	5	4		2	S 54° E	4·5	4·2			86	·894	7·7	13			7·33	9·28	− 1·95	34·98	30·63	+ 4·35	1·65	Zanzibar .	Africa.	
22	1	3		2	2				E	3·5	3·4			89	·878	6·0	15			9·38			32·46			1·68	Do. Dunga.		
2	4	15	2	4	1			2	N 49° E	3·6						0	21			9·90			53·16			1·62	Penang .	Straits Settlements.	
	6	7	5	4	3		1	4	N 37° E							3·9	7			4·52			26·21			2·54	Singapore.		

station, the data for that station are not utilized in calculating the provincial variation.

‡ Mean of 28 days ‖ Rainfall since 1st July 1902 to date. ‡‡ Wind variables 3.

Table II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63 Stations in India, Burma, etc., in November, 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure.						Temperature of Air.										Temperature, Wet-bulb			
			Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity 45°Lat.	Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Bay Islands.	Port Blair	61	29·937	29·841	·096	29·888	+·044	29·880	87·0	77·9	9·1	89·9	74·6	15·3	83·9	83·1	81·2	+ 0·6	75·5	79·6	79·1	78·1
	Rangoon	57	·967	·859	·108	·913	+·032	·908	88·6	72·5	16·1	90·4	68·5	21·9	83·1	86·5	78·9	+ 1·0	70·9	75·0	75·4	73·8
	Diamond Island	41	·980	·878	·102	·928	+·031	·904	85·7	77·3	8·4	88·4	74·2	14·2	82·1	83·9	80·7	+ 1·6	71·6	75·1	76·1	74·3
	Cocos Island	119										Not received.										
	Akyab	20	30·023	·921	·102	·975	+·036	·938	85·9	69·5	16·4	89·8	64·4	25·4	79·0	82·2	77·2	− 0·7		73·5	74·1	
Bengal and Orissa.	Chittagong	87	29·975	·874	·101	·923	+·046	·960	83·4	62·3	21·1	88·3	56·9	31·4	77·4	79·7	72·4	− 1·6	61·9	70·4	70·4	67·6
	Calcutta (Allpore)	21	30 065	·952	·113	30·001	+·040	·968	82·5	63·4	19·1	88·1	56·9	31·2	77·5	80·8	72·4	0	62·1	68·8	68·4	66·5
	Saugor Island	25	·053	·944	·109	29·993	+·042	·962	83·1	65·9‡	17·2	86·9	60·0	26·9	78·6	80·1	73·1‡	0	63·4	71·1	69·6	68·0
	False Point	21	·060	·958	·102	30·008	+·036	·971	83·1	62·9	20·2	87·4	54·6	32·8	78·8	80·2	71·9	− 1·1	62·3	70·1	69·6	67·3
Gangetic Plain and Chota Nagpur.	Hazaribagh	2,007	28·043	27·952	·091	27·992	+·026	·975	78·3	58·2	20·1	82·2	51·2	31·0	73·2	75·2	67·2	+ 0·4	53·5	58·9	59·6	57·3
	Darbhanga	166	29·925	29·801	·124	29·858	+·035	·983	81·0	61·4	19·6	84·2	56·7	27·5	75·9	78·6	70·2	− 1·1	60·1	67·8	67·9	65·3
	Allahabad	309	·803	·682	·121	·732	+·017	30·002	83·1	53·6	29·5	88·7	48·2	40·5	75·2	81·6	67·1	− 1·9	52·4	63·4	64·2	60·0
Upper Sub-Himalayan.	Dehra Dun	2,233	27·825	27·738	·087	27·771	+·027	·007	75·2	52·0	23·2	78·1	47·6	30·5	66·9	71·6	62·0	− 0·4	48·9	58·0	60·2	55·7
	Roorkee	899	29·174	29·067	·107	29·109	+·024	29·098	80·5	49·4	31·1	84·0	43·4	40·6	70·4	76·2	63·2	− 0·7	48·5	60·1	61·1	56·6
	Meerut	738	·326	·225	·101	·267	+·020	·990	82·7	50·9	31·8	86·7	45·9	40·8	68·7	77·6	64·9	+ 0·1	48·3	57·8	60·8	55·6
	Lahore	702	·373	·281	·092	·317	+·022	30·004	83·1	51·5	31·6	88·6	44·7	43·9	71·7	80·7	65·3	+ 2·9	48·1	60·3	64·1	57·5
	Ludhiana	812	·257	·159	·098	·197	+·031	29·999	80·5	53·1	27·4	85·5	49·2	36·3	70·4	78·1	65·0	+ 2·0	49·1	57·5	59·6	55·4
N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.	Peshawar	1,110	28·997	28·900	·097	28·939	+·024	30·067	75·8	48·9	26·9	82·9	42·7	40·2	68·0	71·5	59·9	+ 1·3	44·6	57·3	58·9	53·6
	Jacobabad	186	29·907	29·790	·117	29·838	+·022	29·987	89·6	54·9	34·7	97·1	49·5	47·6	77·4	84·9	69·6	+ 3·9	51·1	65·0	68·8	61·7
	Kurrachee	30	30·069	·963	·106	30·017	+·033	·991	91·4	64·9	26·5	96·7	60·5	36·2	84·3	86·7	77·6	+ 3·5	58·0	69·5	73·6	67·0
East Rajputana, Central India and Gujarat.	Jaipur	1,431	28·663	28·564	·099	28·603	+·041	30·006	86·1	55·3	30·8	90·5	50·9	39·6	78·7	83·2	68·9	+ 1·2	48·2	60·5	62·5	57·0
	Udaipur	1,925	·164	·054	·110	·109		·002	83·6	52·2	31·4	88·5	47·5	41·0	76·3	81·8	67·4		48·7	61·1	63·3	57·7
	Deesa	466	29·608	29·491	·114	29·544	+·033	29·963	93·2	59·5	33·7	97·9	56·3	41·6	85·5	91·0	76·2	+ 2·2	51·4	63·2	64·9	59·8
	Jamnagar	61	30·025	·908	·117	·966		·973	90·6	62·5	28·1	95·5	56·2	39·3	84·2	87·8	75·8		57·3	65·8	66·3	63·1
Deccan.	Belgaum	2,539	27·482	27·374	·108	27·423	+·039	·881	80·3	61·8	18·5	84·3	53·5	30·8	75·3	78·3	70·6	− 0·2	59·5	65·9	67·0	64·1
	Sholapur	1,590	28·449	28·325	·124	28·385	+·038	·924	84·8	63·1	21·7	88·8	53·5	35·3	78·2	83·0	73·1	− 0·6	58·9	65·8	66·0	63·6
	Akola	930	29·143	29·020	·123	29·077	+·015	·968	86·1	57·6	28·8	91·1	48·9	42·2	79·1	84·5	72·4	0	55·3	65·1	66·1	62·2
	Buldana	2,132	27·924	27·819	·105	27·867	+·035	·951	80·6	61·9	18·7	86·3	56·8	29·5	76·6	78·3	71·5	− 0·7	55·9	62·8	62·9	60·6
	Khandwa	1,044	29·032	28·908	·124	28·966	+·048	·976	86·2	57·2	29·0	89·4	49·6	39·8	76·8	84·2	71·2	+ 0·7	54·6	64·1	65·8	61·5
	Nagpur	1,025	·056	·932	·124	·990	+ 053	·981	85·5	59·6	25·9	91·1	53·8	37·3	76·6	83·4	72·9	+ 0·2	55·0	63·3	65·0	61·1
	Nagpur (Sanitary Commr.'s Office)	1,013	·067	·942	·125	29·001		·981	86·3	59·5	26·8	91·4	52·2	39·2	78·4	83·6	72·2		55·7	65·9	68·4	63·3
	Hyderabad (Deccan).	1,690	28·358	·248	·110	28·301	+·026	·949	81·8	62·6	19·2	86·2	53·3	32·9	76·5	78·9	71·5	− 0·5	60·7‖	67·2	68·1	65·3
West Coast.	Bombay	37	29·996	29·887	·109	29·936	+·026	·912	88·6	75·8	12·8	91·4	72·6	18·8	81·4	85·7	81·2	+ 2·1	69·4	72·5	74·7	72·2
	Karwar	44	·953	·846	·107	·893	+·028	·869	88·4	71·5	16·9	91·8	62·4	29·4	81·2	86·1	79·0	+ 1·5	68·5	73·7	75·8	72·7

‡ Mean of 29 days. § Mean of 29½ days. ‖ Mean of 28 days.

II.

Stations in India, Burma, etc., in November, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind Direction. Number of winds from										Wind steadiness.		Wind velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·854	·959	·931	·915	−·008	89	82	79	83	+1	5·5	5·9	5·7	+0·4		3	18	8	18	1	6	1	5	N. 87° E.	N. 81° E.	45	44	133*	165	14·13	3·84	Port Blair	Burma Coast and Bay Islands.
·741	·764	·731	·745	−·037	92	67	58	72	−6	3·0	3·9	3·5	−0·7		19	17	13	6				5	N 40° E.	N 63° E.	67	56	45*	97	0	0	Rangoon	
·696	·784	·797	·759	−·032	74	71	68	71	−7	2·6	3·9	3·3	−1·2	3	4	31	14	2			1	5	N. 49° E.	N. 60° E.	72	59	296*	222	1·05	0·58	Diamond Island, Cocos Island.	
	·760	·738				76	67			1·6	0·9	1·3	−1·9			17	12	1		6	12	12	N	N. 3° E.	26	31	60*	55	0	0	Akyab	
·556	·656	·622	·611	−·073	97	69	61	76	−3	1·2	1·9	1·6	−1·3		5	27	1	1			2	24	N. 3° E.	N. 19° W.	67	48	66*	63	0	0	Chittagong	Bengal and Orissa.
·552	·593	·535	·560	−·024	93	62	51	69	−4	1·3	1·5	1·4	−1·1	7	13	7	3	3	1	2		24	N. 15° W	N. 14° W.	52	59	59	62	0·05	0·03	Calcutta (Alipore).	
·543	·664	·587	·598	−·039	87	67	57	70	−5	2·5	2·4	2·5	−0·4	2	31	6		1	4	6	1	9	N. 11° W.	N. 3° E.	55	60	151	167	0·01	0·01	Saugor Island.	
·565	·628	·588	·594	−·034	97	62	56	72	−2	4·0	3·6	3·8	+0·2		18	13	14		5			10	N. 29° E.	N. 27° E.	55	59	114*	153	0·27	0·22	False Point	
·360	·326	·323	·336	−·024	72	40	36	49	−5	1·8	1·6	1·7	−0·8	6	13	9	4	1	1		6	20	N. 16° W.	N. 30° W.	55	45	101*	110	0·05	0·05	Hazaribagh	Gangetic Plain and Chota Nagpur.
·505	·577	·541	·541	+·007	93	64	55	71	+1	0·4	0	0·2	−0·6	36		1	5	4	1	5	6	2	S. 24° W.	S. 85° W.	10	40	17	41	0	0	Darbhanga	
·384	·430	·372	·395	−·017	92	49	35	59	−3	0·9	0·9	0·9	−0·3	12	4	3	3	2	2	4	15	15	N. 64° W.	N. 52° W.	40	23	† 56*	49	0·06	0·06	Allahabad	
·314	·374	·385	·358	+·016	80	56	49	62	+1	1·7	2·1	1·9	+0·5	29					5	9	11	5	S. 70° W.	S. 89° W.	38	17	14§	34	0	0	Dehra Dun	Upper Sub-Himalayas.
·324	·387	·342	·354	+·009	94	52	38	61	+3	0·9	0·9	0·9	−0·1	18	3	1	5	15	3	1	1	13	S. 76° E.	N. 88° W.	10	4	30	26	0	0	Roorkee	
·308	·339	·316	·321	−·014	82	48	33	54	−2	0·7	0·8	0·8	0	27	3		1	1		2	16	10	N. 71° W.	N. 57° W.	40	40	22*	29	0	0	Meerut	
·296	·374	·380	·350	+·035	77	48	36	54	+4	1·8	1·6	1·7	+0·3	18	7	3	5	2		1	8	16	N. 32° W.	N. 45° W.	37	18	33	32	0	0	Lahore	
·299	·305	·268	·290	−·023	74	41	28	48	−5	1·6	1·9	1·8	−0·1	5	1	3		6			30	15	N. 74° W.	N. 45° W.	60	33	35*	23	0	0	Ludhiana	
·247	·346	·348	·314	+·042	71	51	45	56	+3	3·1	3·8	3·5	+1·2	40	3	2	6	4			2	3	N. 58° E.	N. 76° E.	12	12	25*	51	0·05	0·05	Peshawar	N.-W. Frontier Provinces, Indus Valley and N.-W. Rajputana.
·230	·457	·493	·427	+·129	76	49	41	55	+11	1·3	2·1	1·7	+0·3	46	3	2	1	4	1			3	N. 49° E.	N. 13° W.	7	11	4*	40	0	0	Jacobabad	
·391	·535	·662	·530	+·080	64	45	52	54	0	0·4	0·5	0·5	−0·7	1	3	9	14	6	2	14	9	2	S. 39° E.	N. 85° W.	11	18	134*	193	0	0	Kurrachee	
·253	·302	·309	·288	−·009	57	31	27	38	−5	0·9	1·0	1·0	−0·5	13	5	3	3	2	2	7	9	16	N. 61° W.	N. 19° W.	35	36	44	66	0	0	Jaipur	East Rajputana, Central India and Gujarat.
·303	355	·360	·339		77	39	33	50		0·5	0·4	0·5		48		4	4		1	2		1	N. 77° E.		8		10*		0	0	Udaipur	
·274	·285	·270	·276	−·005	53	23	19	32	−2	0·2	0·2	0·2	−1·3		7	13	17	11	1	1	4	6	N. 66° E.	N. 61° E.	45	48	118	181	0	0	Deesa	
·405	·395	·360	·386		71	34	27	44		0·5	0·9	0·7			18	19	8	2			1	7	N. 27° E.		65		211*		0	0	Jamnagar†	
·493	·529	·524	·516	+·052	87	60	53	67	+8	4·4	5·6	5·0	+1·6	2	2	16	28	10	2				N. 84° E.	N. 76° E.	78	64	242	267	2·54	1·74	Belgaum	Deccan.
·465	·488	·437	·463	+·003	77	50	38	55	+2	4·4	5·0	4·7	+1·1		3	19	19	18	1				N. 86° E.	N. 77° E.	75	65	247*	199	0·94	0·41	Sholapur	
·428	·443	·407	·426	+·016	86	44	34	55	+2	1·9	1·6	1·8	+0·1	27		9	17	5	1			1	N. 84° E.	N. 61° E.	44	49	49*	85	0·27	0·22	Akola	
·389	·410	·387	·395	0	67	44	40	51	+1	1·9	1·7	1·8	−0·5		7	15	19	14	3				N. 81° E.	N. 64° E.	64	52	96*	122	2·17	1·34	Buldana	
·409	·446	·408	·421	+·052	83	49	36	56	+7	1·9	1·7	1·8	+0·2	1	2	17	27	10	2	1			N. 85° E.	N. 58° E.	77	52	75	64	2·55	1·13	Khandwa	
·388	·425	·398	·404	−·027	73	46	34	51	−4	1·7	1·6	1·7	−0·8	4	18	28	5	3	2				N. 38° E.	N. 54° E.	72	60	84	95	0·46	0·45	Nagpur	
·411	·490	·509	·470		78	50	44	57		1·6	1·7	1·7		17		32		4				7	N. 40° E		53		17*		0·46	0·46	Do. (Sanitary Commr.'s Office).	
·525‖	·561	·563	·550	+·018	91‖	61	56	69	+2	4·1	6·0	5·1	+1·9	36	1	3	11	9					S. 81° E.	S. 72° E.	33	67	73*	88	0·72	0·48	Hyderabad (Deccan).	
·638	·689	·722	·683	−·011	71	63	58	64	−6	1·8	2·1	2·0	−0·1		2	12	16	3			5	22	N. 14° E.	N. 18° E.	42	52	226	235	0·01	0·01	Bombay	West Coast.
·669	·740	·759	·723	+·017	86	69	61	72	−2	2·0	3·4	2·7	+0·2	16	6	10	4				17	7	N. 27° W.	N. 31° W.	30	46	76	60	0·84	0·44	Karwar	

† Wind variable 5.

* Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 63

Meteorological Province.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Pressure. Mean of 16 hours.	Pressure. Mean daily range.	Pressure. Mean daily pressure.	Pressure. Variation from normal.	Pressure. Mean reduced to S. L., and for gravity 45° Lat.	Temperature of Air. Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	29·048	28·930	·118	28·996			84·8	70·5	14·3	87·7	64·9	22·8	79·4	82·1	76·7		68·7	72·9	73·5	71·7
	Salem	940	·076	·963	·113	29·025	+·026	29·906	86·3	70·0	16·3	91·1	64·2	26·9	80·6	81·8	76·6	+0·5	69·0	74·3	75·2	72·8
	Chitaldroog	2,405	27·617	27·507	·110	27·562	+·016	·894	81·2	65·3	15·9	85·5	56·9	28·6	75·2	78·9	72·7	+0·9	63·1	67·5	67·5	66·0
	Bangalore	3,021	·028	26·924	·104	26·979	+·032	·901	79·5	63·6	15·9	84·3	56·7	27·6	73·4	76·4	70·8	+1·0	62·6	67·0	67·9	65·8
	Hassan	3,091	26·957	·856	·101	·910	+·015	·895	77·8	62·6	15·2	81·5	53·3	28·2	74·0	76·2	69·8	+0·2	61·6	66·9	65·8	65·1
	Mysore	2,518	27·504	27·395	·109	27·450	+·014	·883	82·4	65·5	16·9	86·1	59·3	26·8	76·5	79·2	73·2	+0·3	64·3	68·4	69·0	67·2
	Madras	22	30·001	29·901	·109	29·950	+·032	·903	84·2	74·0	10·2	88·9	69·6	19·3	81·2	80·9	78·5	+0·4		75·8	75·5	74·8
	Bellary	1,475	28·560	28·432	·128	28·496	+·035	·919	86·4	67·2	19·2	91·0	58·9	32·1	78·4	82·7	75·5	+0·3	64·6	68·7	68·6	67·3
	Waltair	226	29·833	29·729	·104	29·781		·950	84·1	73·3	10·8	87·2	66·0	21·2	81·7	80·5	77·8		63·5	69·2	69·7	67·5
Hill Stations, Baluchistan.	Quetta	5,502	24·814	24·734	·080	24·764	+·038		66·3	37·5	28·8	75·2	29·4	45·6	58·7	61·1	50·6	+3·2	35·3	47·3	47·7	43·6
Hill Stations, Northern India.	Leh	11,503	19·825	19·722	·103	19·775	+·042		44·3	21·1	23·2	52·8	11·9	40·9	34·3	40·8	32·6	+0·1	18·0	25·5	30·8	24·8
	Srinagar	5,204	25·111	25·017	·094	25·054	+·055		57·1	34·5	22·6	68·0	29·0	39·0	45·1	55·3	45·3	+0·3	32·9	42·4	51·0	42·1
	Kailang	10,087	21·099	20·996	·093	21·052	?		50·3	22·7	27·6	64·1	14·5	49·6	36·2	39·4	31·9	−1·8	21·2	30·1	31·3	27·5
	Simla (Ridge)	7,224	23·258	23·200	·058	23·219	+·049		54·9	44·3	10·6	59·2	39·8	19·4	51·0	50·9	48·4	−1·3	37·7	41·3	41·8	40·3
	Chakrata	7,022	·415†	·354‡	·061	·374‡	+·031		60·0‡	43·6†	16·4	62·3	38·9	23·4	53·9†	53·0‡	49·8‡	−0·7	38·3†	45·1†	44·6‡	42·7
	Ranikhet	6,069	24·250	24·172	·078	24·198	+·040		61·5	47·6	13·9	65·1	45·0	20·1	57·6	57·1	53·3	−0·7	42·7	48·4	48·5	46·5
	Muktesar	7,600	22·980	22·912	·068	22·946			58·9	42·4	16·5	63·6	38·0	25·6	54·2	53·2	49·2		37·3	45·3	45·6	42·7
	Katmandu	4,388	25·833	25·750	·083	25·788	?		71·7	44·5	27·2	76·1	38·7	37·4	58·4	67·8	57·2	−1·1	43·4	53·3	56·5	51·1
	Darjeeling	7,376	23·113	23·056	·057	23·080	+·013		54·7	42·0	12·7	60·2	39·0	21·2	50·1	52·5	47·8	+0·4	38·9	45·4	47·6	44·0
Hill Stations, Central India.	Mount Abu	3,945	26·215	26·138	·077	26·169	+·027		73·1	59·1	14·0	77·3	54·4	22·9	70·0	70·7	65·5	+0·8	49·5	52·8	52·9	51·8
	Pachmarhi	3,528	·620	·531	·089	·572	+·045		74·7	50·5	24·2	78·1	45·3	32·8	68·5	69·9	62·2	+0·2	48·3	56·6	58·6	54·5
	Chikalda	3,642	·480	·383	·097	·427	+·023		73·9	58·0	15·9	77·8	52·7	25·1	70·1	71·8	65·2	−0·7	52·2	58·8	60·5	57·2
Hill Stations, S. India.	Kodaikanal	7,688	22·884	22·815	·069	22·849			61·5	50·5	11·0	67·1	47·2	19·9	58·3	56·9	54·6		48·0	55·2	54·7	52·7
	Ootacamund		23·114	23·046	·068	23·080			63·8	50·0	13·8	67·1	41·2	25·9	60·9	58·7	55·7		48·4	55·6	55·0	53·0
Extra India.	Aden	94	29·926	29·830	·106	29·887	−·019	·913	84·8	77·0	7·8	93·3	72·5	20·8	82·2	83·6	80·8	+1·9	71·0	73·6	73·3	72·6
	Perim	201	·789	·683	·106	·740	−·028	·874	88·1	79·1	9·0	91·7	76·2	15·5	85·0	84·6	82·8	+1·9	73·7	76·1	75·4	75·1
	Minicoy	7	·985†	·893†	·092	·938		·870†	85·9			87·7			83·6	82·4				78·1	77·3	
	Zanzibar	73	·968	·861	·107	·915	−·005	·915	84·7	77·8	6·9	89·5	73·2	16·2	81·8	84·0	81·1	+1·5	75·1	77·6	77·9	76·9
	Port Victoria (Seychelles).	15	·958	·872	·086	·915	−·027	·854	83·9	72·8	10·1	85·7	71·6	14·1	82·5	82·9	78·6	−0·4	73·4	77·2	76·8	75·8
	Mauritius (Pamplemousses).	191				·863	−·028	·991				89·9	59·3	30·6			76·5	+1·3				

† Mean of 29 days.

‡ Mean of 28 days.

II—*concluded.*

Stations in India, Burma, etc., in November, 1902—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind direction. Number of winds from										Wind steadiness.		Wind velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·679	·723	·715	·711		91	72	65	77		6·0	8·1	7·1		18	2	1	15	9	6	2	4	3	S. 59° E.		28		49*		7·09	2·43	Periyakulam	South India.
·700	·774	·794	·756	+·096	95	73	73	80	+ 5	7·1	7·7	7·4	+2·2	13	1	11	27		2	1	5		N. 78° E.	N. 87° E.	50	24	61*	74	2·60	0·69	Salem.	
·562	·580	·537	·560	+·066	88	66	54	69	+ 4	6·4	6·3	6·4	+1·7	5		13	32	10					N. 86° E.	N. 74° E.	80	72	137*	160	2·69	1·43	Chittaldroog.	
·561	·592	·590	·581	+·049	95	72	65	77	+ 4	6·1	5·2	5·7	+0·8	1	1	26	25	6	1				N. 73° E.	N. 61° E.	84	64	176*	108	0·41	0·18	Bangalore.	
·543	·578	·552	·558	+·022	94	69	61	75	+ 2	7·5	7·4	7·5	+1·1			25	30	5					N. 75° E.	N. 71° E.	89	77	70*	86	2·68	0·82	Hassan.	
·593	·596	·588	·592	+·022	94	65	59	73	+ 5	8·6	9·0	8·8	+2·3		2	19	26	11	1	1			N. 83° E.	N. 78° E.	78	72	201*	219	0·61	0·27	Mysore.	
	·823	·813	·816	+·045		77	77	83	+ 2	6·6	6·3	6·5	+0·5		29	17	7	2	1	1		3	N. 24° E.	N. 24° E.	73	64	166	156	10·53	2·46	Madras.	
·588	·589	·535	·571	+·031	87	60	47	65	+ 3	5·3	5·9	5·6	+0·7	3	2	16	22	11	5			1	N. 88° E.	N. 81° E.	67	55	69*	77	2·56	1·65	Bellary.	
·464	·556	·591	·537		56	51	56	54		5·2	5·3	5·3				53	4		1	2			N. 49° E.		89		154		1·23	0·60	Waltair.	
·195	·210	·194	·200	+·049	85	43	37	55	+ 8	1·7	1·9	1·8	+0·3	26	6		2	5	1	3	7	10	N. 58° W.	N. 51° W.	20	49	36*	54	0·59	0·50	Quetta.	Hill Station, Baluchistan.
·077	·075	·097	·083	−·009	65	35	37	46	− 8	2·8	4·2	3·5	−0·6		1	4	1	2	12	28	11	1	S. 43° W.	S. 21° W.	65	34	45	41	0·14	0·11	Leh	
·173	·244	·337	·251	+·024	85	80	76	80	+ 2	4·5	4·0	4·3	+1·1	20	11	3	1	1	3	4	5	12	N. 39° W.	N. 16° E.	33	18	50*	66	1·80	0·56	Srinagar.	
·105	·121	·112	·113	+·011	85	57	50	64	+12	3·9	4·3	4·1	+0·4		1	1		3	7	23	19	6	S. 62° W.	S. 52° W.	68	61	19	33	0·81	0·57	Kailang.	
·161	·162	·173	·165	−·009	55	43	46	48	0	2·4	2·6	2·5	+0·2	34	11				15				S	S. 12° W.	7	18		101	0	0	Simla (Ridge).	Hill Stations, Northern India.
·181†	·210†	·209‡	·200	+·001	62†	50†	51‡	54	− 1	1·9†	2·9§	2·4	+0·7	4	7	2		18	23	1		2	S. 25° E.	S. 61° W.	51	30	175†	115	0·08	0·07	Chakrata.	
·227	·247	·255	·243	−·007	68	52	54	58	− 1	1·3	1·1	1·2	−0·3	18	1	1	3			13	20	4	S. 81° W.	S. 53° W.	48	35	44*	37	0	0	Ranikhet.	
·172	·215	·230	·206		63	50	56	56		1·9	2·2	2·1		18	2		1	15	3	4	4	13	S. 39° W.		12		85*		0	0	Muktesar.	
·273	·353	·331	·319	−·018	91	72	49	71	− 1	0·9	1·2	1·1	−1·1	3		3	9	3	1	6	33	2	S. 82° W.	N. 80° W.	43	45	9	14	0	0	Katmandu.	
·208	·257	·280	·248	−·017	77	71	71	73	− 7	3·5§	4·7†	4·1	−0·3		2	12	7	4	3	6	13	13	N. 39° W.	N. 79° W.	22	12	?	64	0·55	0·23	Darjeeling.	
·245	·205	·199	·217	−·027	49	28	26	34	− 5	0·3	0·4	0·4	−1·1	2	14	19	4	2	2	4	3	10	N. 12° E.	N. 51° E.	48	21	102*	94	0	0	Mount Abu.	Hill Stations, Central India.
·323	·326	·366	·338	+·025	85	47	50	61	+ 6	1·6	1·8	1·7	−0·4	11	2	17	7	14		2		7	N. 71° E.	N. 46° E.	40	41	60*	63	1·65	0·60	Pachmarhi.	
·333	·371	·405	·370	+·004	67	51	52	57	+ 2	2·0	1·9	2·0	−0·4	15		3				7		5	N. 83° W.	N. 7° W.	11	19	167*	114	1·79	1·04	Chikalda.	
·315	·412	·410	·382		85	86	89	69		6·2	8·1	7·2			4	10	19	15	2	1	2	7	N. 85° E.		48		311		9·38	1·49	Kodaikanal	Hill Stations, S. India.
·328	·390	·396	·371		90	74	80	81		6·4	7·2	6·8		29	1	10	11	7	1			1	N. 83° E.		38		62*		2·76	0·55	Ootacamund.	
·685	·716	·685	·695	+·042	73	65	59	66	0	2·2	1·4	1·8	−0·4			12	28	14	3	3			S. 82° E.	S. 87° E.	75	66	§ 321*	311	0·07	0·05	Aden.	Extra India.
·763	·784	·759	·769	+·097	77	65	64	69	+ 7	0·6	0	0·3	−1·5		1	3	4	52					S. 52° E.	S. 62° E.	90	82	471*	491	0·07	0·07	Perim.	
	·885	·869				78	79			4·9	6·6	5·8			4	17	15	9	2	2	8	3	N. 69° E.		38		124*		7·59	2·65	Minicoy.	
·836	·897	·877	·870	+·051	88	83	75	82	+ 1	7·9	6·6	7·3	+1·6		5	9	9	9	14	5	4	5	S. 50° E.	S. 31° E.	23	29	103*	115	7·33	1·65	Zanzibar.	
·826	·869	·845	·847	+·028	99	78	75	84	+ 2	6·6	7·1	6·9	0	12	5	7	6	8	2	1	3	16	N. 7° E.	S. 70° E.	22	30	107	140	10·41	2·48	Port Victoria (Seychelles).	
			·630	+·030				69	+ 1																		209	259	1·32	0·45	Mauritius (Pamplemousses).	

§ Mean of 29½ days.

* Corrected.

G. I. C. P. O.—No 17684 Meteo.—30-3-03.—385.

LITHO. BY J.N. MUNDLE.

Explanation.

The lines of the above Chart represent isobars or lines of equal barometric pressure, and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of ·05 inch. The isobars in the Bay of Bengal are filled in by means of the shore observations, and by comparison with the ordinary or normal distribution of pressure as given in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant Meteorological Reporter to the Government of India, and published by the Meteorological Department. Hence they have not the same validity as the isobars in the land area of India itself, but it is probable they deviate very little from the actual.

The mean 8 a.m. wind directions of the month are shewn by means of arrows flying with the wind, and are calculated by means of Lambert's formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0 to 2 miles per hour	one	feather added to the wind arrow
,, ,,	2 to 5 ,, ,, ,,	two	feathers ,, ,, ,, ,,
,, ,,	5 to 10 ,, ,, ,,	three	,, ,, ,, ,, ,,
,, ,,	10 to 20 ,, ,, ,,	four	,, ,, ,, ,, ,,
	over 20 ,, ,, ,,	five	,, ,, ,, ,, ,,

LITHO. BY J.N.MUNDLE.

Explanation.

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation (of two hundredths of an inch or ·020″). The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other, one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

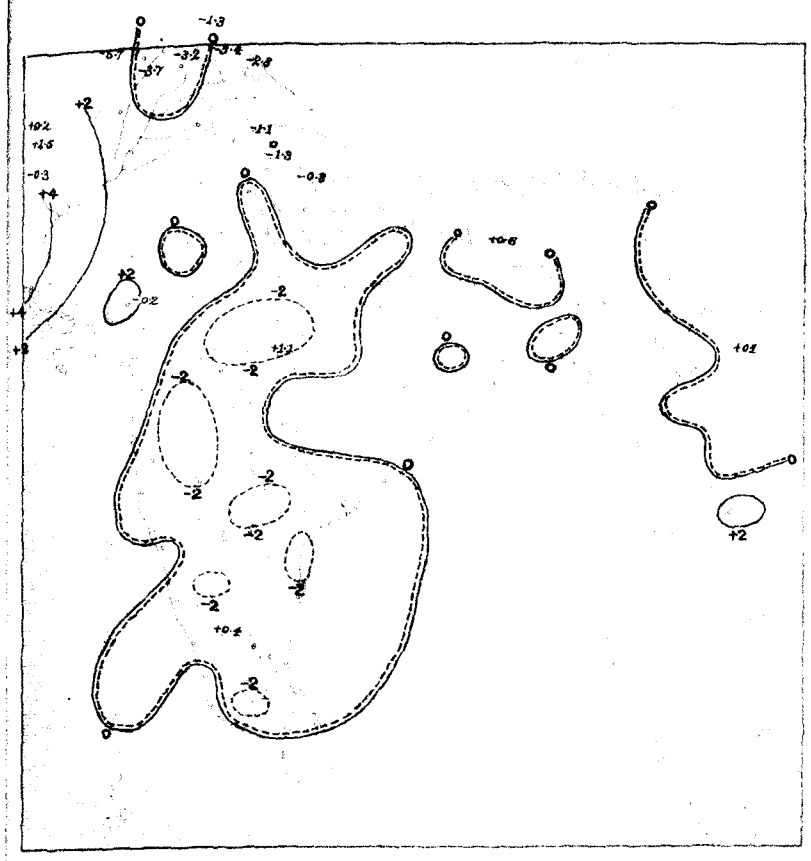
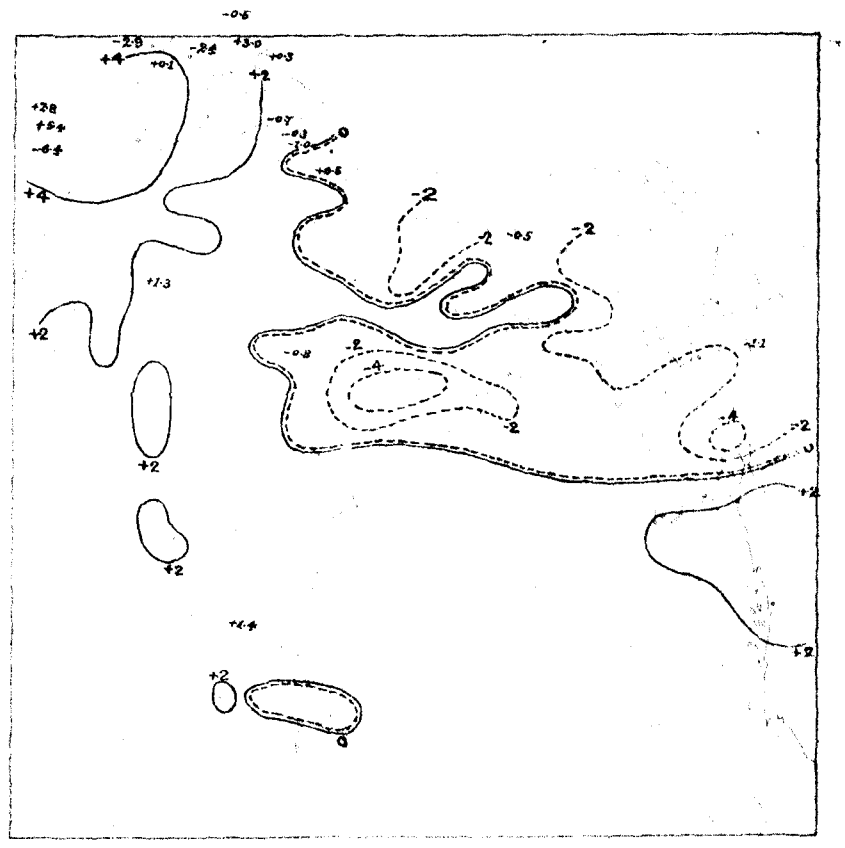


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous lines indicate that the mean maximum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

Continuous lines indicate that the mean minimum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

CHART SHEWING THE VARIATION OF THE MEAN DAILY TEMPERATURE OF THE MONTH FROM THE NORMAL.

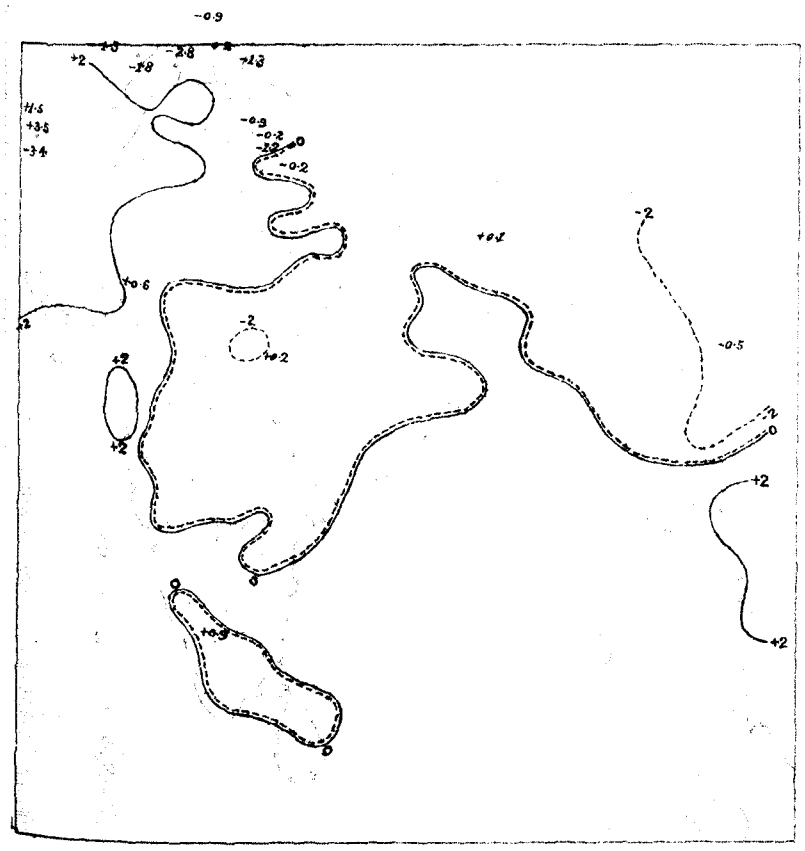
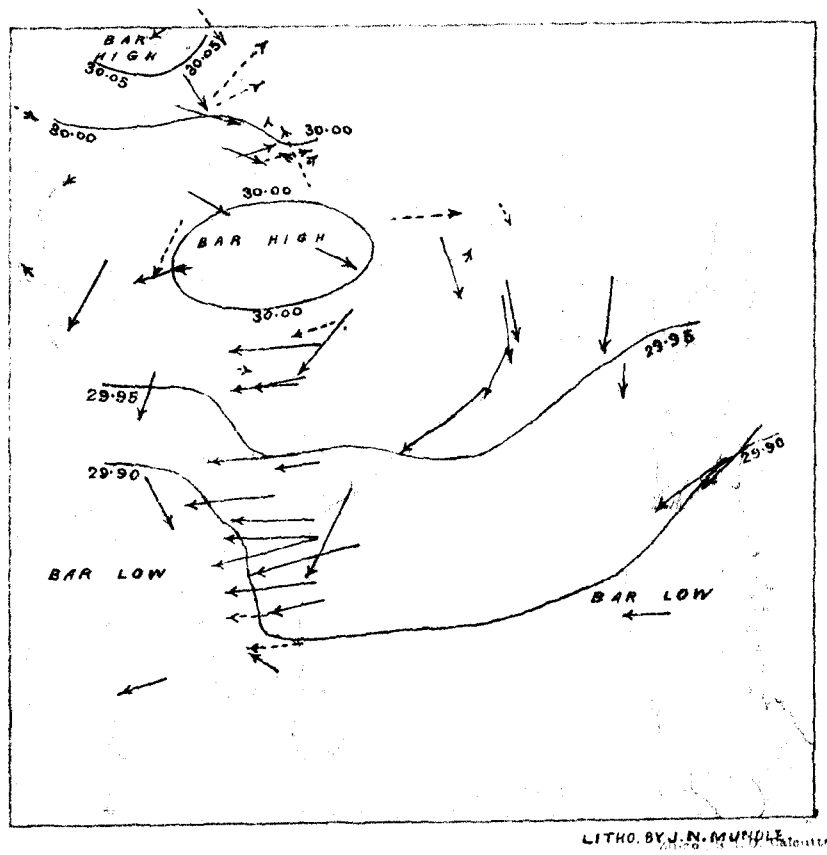


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF NOVEMBER 1902.



LITHO. BY J. N. MUKHLE

Explanation.

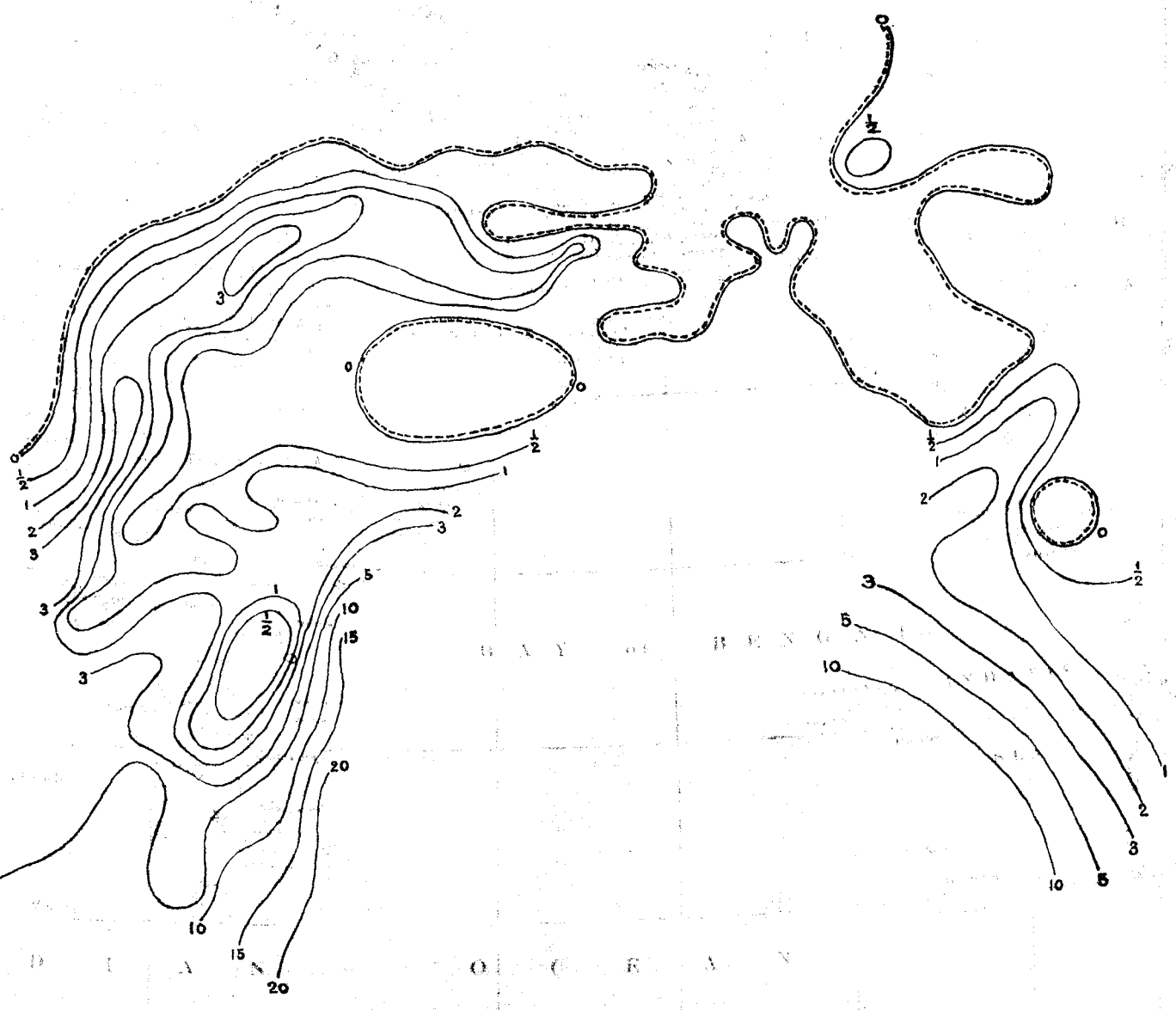
Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. *Double* lines are the lines of no variation, the broken line facing the area of deficient temperature.

The Chart is prepared in the same manner as the Monthly Charts which previously to 1890 appeared in the Annual Reports, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant; a length of $\frac{3}{8}$th of an inch being equal to 100 per cent.

CHART

INDIA

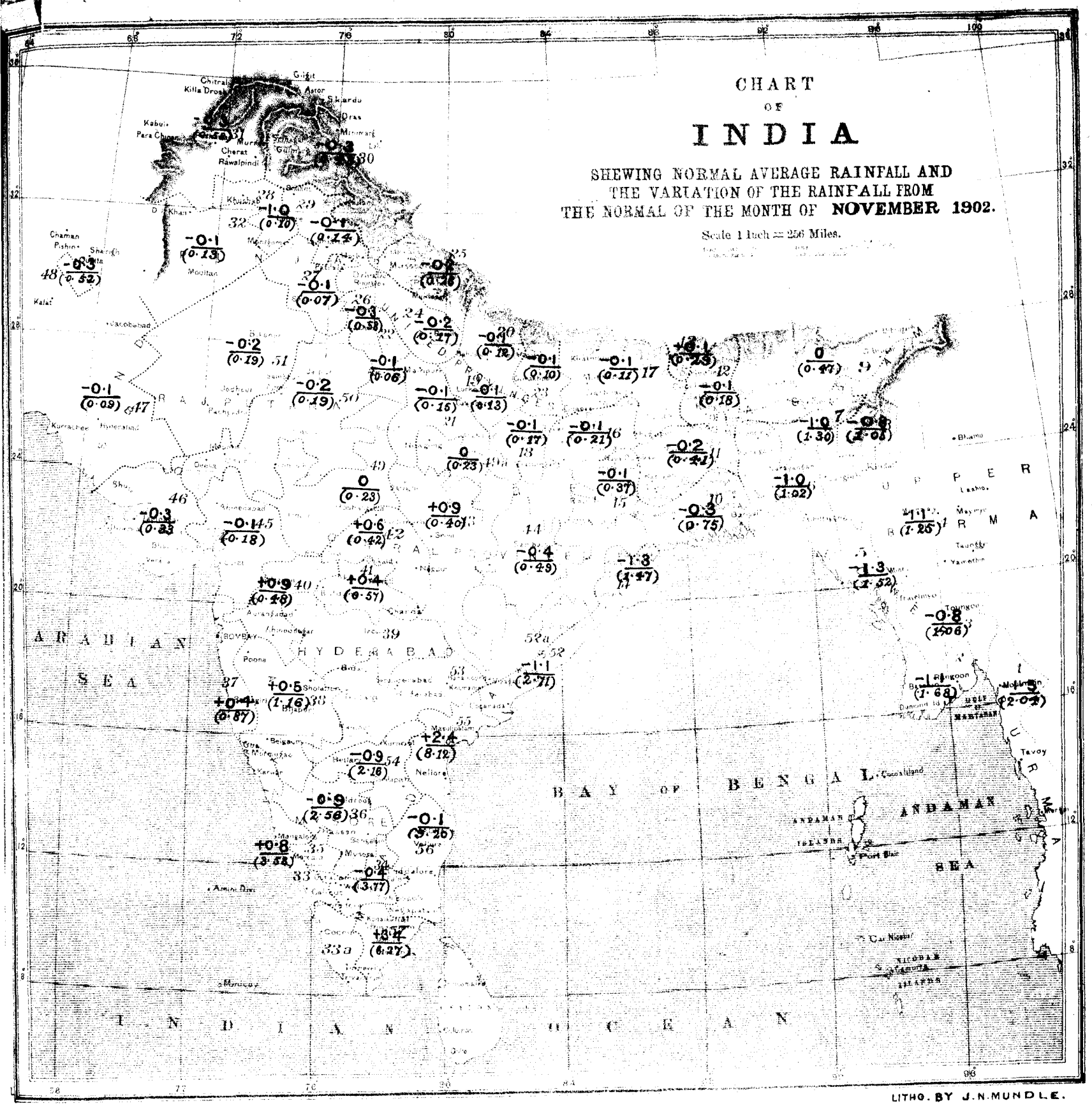
SHOWING THE DISTRIBUTION OF RAINFALL
FOR THE MONTH OF **NOVEMBER 1902.**



LITHO. BY J.N.MUNDLE.

Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India except those at the Hill Stations over 3,500 feet in elevation. [illegible] in number.) The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those where it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted lines [illegible] rainfall.



Explanation.

The Chart gives the variations of the rainfall of the month (in tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have been [illegible] for a sufficient number of years to furnish reliable and useful means. The country is divided into 57 areas, [illegible] the meteorological conditions are fairly uniform and the staple crops similar in character; and the means (both actual and normal) for the month have been calculated, and the numbers given in the centre of each division (usually with a + or − sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The normal average rainfall is also given below in smaller figures enclosed within brackets so that the percentage variation can be at once estimated. The name of the district can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim
2. Lower Burma Deltaic
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam, Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. United Provinces, East
19. South Oudh
20. North do.
21. United Provinces, Central
22. Do. do., West
23. Do. do., East Submontane
24. Do. do., West do.
25. Do. do., Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
33a. Travancore
34. Madras, South Central
35. Coorg
36. Mysore
37. Kerdan
38. Bombay Deccan
39. Hyderabad, North
40. Khandesh
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
49a. Do. do.
50. Rajputana East, Central India West
51. West Rajputana
52. Madras, East Coast, North
52a. Do. do. do. (a)
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South

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GOVERNMENT OF INDIA.

METEOROLOGICAL DEPARTMENT.

MONTHLY WEATHER REVIEW

PUBLISHED BY ORDER OF

THE GOVERNMENT OF INDIA.

CALCUTTA, DECEMBER, 1902.

INTRODUCTION.

THIS review of the weather in India during the month of December 1902 is based on observations taken daily at 8 A.M. at 228 stations, and on additional observations taken at 10 A.M. and 4 P.M. at 62 stations. The rainfall summary is based on the rainfall data of the meteorological observatories and the rainfall statements of the month published by the Provincial Governments that had been received up to the date of the publication of the review. A summary of the weather in the Bay of Bengal and the Arabian Sea, derived from information extracted from the logs of vessels entering the ports of Calcutta and Bombay, is also given.

Summary of the chief features of the weather in India during the month of December, 1902.

The most important feature in the meteorology of the month of December is the final withdrawal of the south-west humid winds from the south of the Bay and the extension of the north-east monsoon winds over the whole of the Bay. This change usually occurs in the third or fourth week of the month. During the early part of the month the north-east winds, which prevail on the Coromandel coast and in east Ceylon, continue to give light to heavy rain. This rainfall is heaviest in the south Coromandel coast districts and diminishes rapidly westwards from the coast into the interior.

Cyclonic storms are also of occasional occurrence during the month, and the final withdrawal of the retreating south-west monsoon current from the south of the Bay is frequently immediately preceded by the formation of a cyclonic storm in the south-west of the Bay. These storms almost invariably march westwards to the south Coromandel coast between Negapatam and Cuddalore or Pondicherry and usually break up in the Madura, Tinnevelly or Coimbatore districts. They occasionally give excessive cyclonic rain to the south Coromandel coast districts.

Another important feature is the occasional appearance of shallow depressions in upper India. These depressions originate sometimes in Baluchistan and Persia and sometimes in north-western India. They generally give very little rain if they occur during the early part of December. In the latter part of December and in January and February, these depressions and storms of the cold weather frequently give moderate, general rain to northern India and moderate to heavy snow to the hill districts. They usually march in an easterly direction across northern India. When they enter India from Baluchistan they frequently give rise to the formation of secondary or subsidiary depressions in the Punjab. These subsidiary storms are usually much deeper and more intense than the primary storms and give heavy rain in the Punjab, and stormy weather and heavy snow in the hills.

The weather during December 1902 was quieter than usual over northern India and somewhat more disturbed than usual over the Peninsula and the Arabian Sea. The disturbed weather occurred mainly during the first half of the month, the latter half having been generally quiet and settled and principally remarkable for the very low temperatures which prevailed over the greater part of the country from the 19th to the close of the month.

At the commencement of the month pressure was above the normal over northern and central India and below over the south of the Peninsula and the south-east of the Arabian Sea. Within this area of relatively low pressure over the south-east of the Arabian Sea a cyclonic storm formed. This storm passed out into the centre of

the south of the Arabian Sea on the 4th, whence it advanced along a curved course and struck the Kathiawar coast on the 12th and 13th. The storm occasioned a good deal of rain over the south and west of the Peninsula and showers extended inland as far as Berar and the Central Provinces. The principal falls of rain connected with the storm were as follows:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date
			Inches.
South Arcot	Manambadi	4th December	6·25
Chingleput	Tiruvallur	" "	6·15
Tinnevelly	Sivakasi	" "	6·12
South Arcot	Vanur	" "	6·09
	Manambadi	5th "	6·11
	Cuddalore	" "	5·18
	Chidambaram	" "	5·16
	Manambadi	6th "	13·14
	Bhuvanagiri	" "	9·86
Nilgiris	Kotagiri	" "	8·45
Dharwar	Ron	" "	6·70
Coimbatore	Udamalpet	" "	6·50
Nilgiris	Kodanad	" "	6·34
	Devala	7th "	11·23
South Arcot	Manambadi	" "	7·74
Belgaum	Hukeri	" "	4·60
Dharwar	Gadag	" "	4·05
Sholapur	Sangola	" "	3·68
Dharwar	Ranebennur	" "	3·19
North Kanara	Kumta	" "	3·02
Tanjore	Nidamangalam	8th "	5·25
South Arcot	Manambadi	" "	5·16
Belgaum	Khanapur	" "	3·25
Dharwar	Bankapur	" "	2·82
Buldana	Deulgaon Raja	" "	1·71
North Kanara	Holiyal	9th "	5·04
Belgaum	Belgaum	" "	4·85
Sholapur	Akluj	" "	3·84
North Kanara	Mungad	" "	3·57
Sholapur	Malsiras	10th "	3·80
Satara	Mhasdad	" "	3·60
Poona	Indapur	" "	3·43
Ratnagiri	Vengurla	12th "	2·60
Hoshangabad	Pachmarhi	13th "	1·15
Basim	Basim Civil station	14th "	1·01

During this period a cold weather storm advanced from Persia through Baluchistan into north-west India which it reached on the 3rd. The storm, though very slight in intensity, exhibited considerable vitality and was traced eastward as far as Bengal where it filled up on the 8th. It occasioned some rain in Baluchistan, but gave none to India though light showers of snow were received on the higher ranges in Kashmir. It, however, broke down the high pressures prevailing over northern India and on the 5th, pressure was lower than usual over the whole Indian region. This condition of pressure continued practically until the 26th, when a sudden rise took place and higher pressures than usual prevailed from the 26th to the end of the month.

The mean temperature was higher than usual over the Indus valley, the west coast and Tenasserim on the 1st, and lower than usual elsewhere. This distribution continued until the 4th. The following comparative data for the 3rd show the main features of the temperature distribution at this time:—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of 3rd December 1902.
Indus Valley	+3·8
Central Provinces	−2·2
West Coast	+1·7
Assam	−3·1
Burma	+0·4

On the 5th the weather was disturbed over the south-east of the Bay and the following heavy falls of rain were received over Madras:—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 5th December 1902.
		Inches.
South Arcot	Manambadi	6·11
	Cuddalore	5·18
	Chidambaram	5·16
	Vriddhachalam	5·00
	Tittagudi	4·90
Coorg	Fraserpet	3·95
Chingleput	Madurantakam	3·51
South Arcot	Bhuvanagiri	3·30
Nilgiris	Kotagiri	3·30
Tanjore	Negapatam	3·22
Coorg	Gonikopal	3·05

Temperature rose fairly generally between the 5th and the 7th and was more than 6° above the normal at the stations for which comparative data are given below:—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
6th December	Bijapur	+6·2
	Kurnool	+6·1
7th "	Khandwa	+8·0
	Surat	+6·6

Between the 8th and the 10th some showers were received over the central parts of the country and were accompanied with a rapid fall of temperature over that area. The following gives comparative temperature data

for the Bombay Deccan, Berar and the Central Provinces from the 7th to the 10th and shows the extent of the change :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	7th December.	8th December.	9th December.	10th December.
Bombay Deccan . . .	+1·8	—0·4	—0·6	+2·3
Berar	+3·5	—5·2	—4·6	—2·2
Central Provinces . . .	+2·9	+1·0	0	+2·3

On the 11th very high temperatures, relatively to the normal, appeared over Gujarat and over the Deccan and these two areas of excessive temperature gradually extended till by the 17th they embraced practically the whole country. The following gives comparative data for all divisions for the 11th, 17th and 18th and shows the extent of the change:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	11th December.	17th December.	18th December.
	°	°	°
Burma	+1·1	+1·0	—0·8
Assam	—2·0	—0·7	—0·6
Bengal	—1·0	+1·0	+2·2
Orissa	+1·7	+5·2	+7·6
Bihar	—2·3	+1·3	+2·9
Chota Nagpur	—1·4	+5·6	+8·1
United Provinces of Agra and Oudh .	—3·5	+5·3	+5·5
N.-W. F. Province and Punjab .	—1·6	+1·0	+1·6
Sind	+1·3	+0·9	+1·6
Rajputana	—1·2	+6·4	+4·4
Gujarat	+4·5	+3·1	+2·6
Central India	—1·4	+8·8	+9·4
Central Provinces	—1·1	+9·4	+10·4
Berar	—2·2	+10·0	+9·2
West Coast	+1·4	+1·7	+1·5
Bombay Deccan	+1·3	+5·8	+5·5
Mysore	+4·9	+2·3	+4·1
Madras Coast	+2·4	+2·8	+4·3
Madras Deccan	+4·1	+2·0	+4·5
South India	+0·8	+1·6	+2·3

During this period both the day and night temperatures were above the normal, but the principal excess was shown in the night temperatures which were very largely above the normal—more particularly over the central parts of the country. The following gives the largest variations of the night temperature from the normal for each date from the 11th to the 18th :—

DATE.	STATION.	Variation from normal of minimum temperature of date.
		°
11th December 1.	Surat	+13·5
	Malegaon	+13·2
12th "	Khandwa	+17·1
	Akola	+16·5
13th "	Deesa	+19·2
	Malegaon	+15·9
14th "	Malegaon	+16·0
	Sambhar	+15·9
15th "	Malegaon	+15·1
	Poona	+14·4
16th "	Indore	+16·3
	Malegaon	+14·3
17th "	Chanda	+17·5
	Malegaon	+17·3
18th "	Chanda	+20·1
	Akola	+18·2

There were, during this period (11th to 18th), two regions in which this general increase of temperature was temporarily interrupted. On the 13th a cold weather storm appeared near Bushire and advancing eastward entered north-west India on the 15th. It gave no rain to India, but occasioned showers in Baluchistan and snow in Kashmir. The result was a brisk fall of temperature over the North-West Frontier Province and part of the Punjab on the 16th. The extent of this change is shown below :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	14th December.	15th December.	16th December.	17th December.
	°	°	°	°
Quetta	+2·3	+5·2	—1·3	—0·9
Chaman	+6·5	+4·0	+3·7	—2·1
Peshawar	—2·1	+1·8	—1·8	+0·2
Rawalpindi	+1·0	+3·0	—5·4	—0·2
Cherat	+1·5	+2·0	—1·8	—0·6
Mooltan	—1·1	+1·4	—0·7	+0·6

The second area over which the rise was interrupted was Madras. On the 14th the wind was north-westerly with a

falling barometer on the Madras coast. On the 15th and 16th rain was falling heavily and temperature had decreased fast. The following gives data from the 14th to the 17th:—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	14th December.	15th December.	16th December.	17th December.
	°	°	°	°
Nellore	+2·4	−4·5	−4·8	+2·5
Madras	+2·4	−5·9	+1·4	+1·9
Cuddalore	+2·3	−3·4	−1·8	+3·5
Cuddapah	+4·2	−0·4	−5·4	+1·6
Bangalore	+3·5	+2·9	−2·8	+2·0
Salem	−0·8	−2·5	−1·0	+0·5

On the 19th a very important change commenced. Temperature began to fall over the western desert and Gujarat, as well as over the submontane Himalayas and Burma, and mean temperatures below the normal were reported over these three regions on the 20th. From these three centres lower temperatures than usual spread out all over the country, and by the 28th and 29th had extended to practically the whole of India. The following gives comparative data for all divisions for these two days:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	28th December.	29th December.
	°	°
Burma	+1·8	−1·2
Assam	+0·7	+0·6
Bengal	−0·8	−1·5
Orissa	−6·5	−4·8
Bihar	−2·8	−2·9
Chota Nagpur	−5·1	−3·3
United Provinces of Agra and Oudh	−5·3	−3·6
N.-W. F. Province and Punjab	−3·6	−1·2
Sind	−1·7	−1·0
Rajputana	−6·6	−3·7
Gujarat	−4·4	−2·8
Central India	−9·1	−7·7
Central Provinces	−9·4	−8·6
Berar	−8·4	−7·2
West Coast	+0·8	−0·6
Bombay Deccan	−5·4	−6·8
Mysore	−1·1	−4·0
Madras coast	−3·9	−4·9
Madras Deccan	−5·5	−7·0
South India	−0·8	−2·5

It will be noticed that the greatest deficiency was reported over the central parts of the country where, between the 11th and the 18th, the greatest excess had been shown, and it is remarkable that in both periods the largest variations from the normal were shown in the night or minimum temperature. The following gives comparative data for the 28th of maximum and minimum temperatures for certain selected central stations in illustration:—

STATION.	VARIATION FROM NORMAL OF	
	Maximum temperature, 28th December.	Minimum temperature, 28th December.
	°	°
Raipur	−6·5	−12·7
Jubbulpore	−8·7	−12·5
Khandwa	−6·7	−12·3
Seoni	−9·0	−11·7
Chanda	−5·5	−11·6
Neemuch	−7·0	−11·4
Sutna	−6·2	−11·2
Indore	−8·4	−10·9
Nowgong	−7·1	−10·6
Hoshangabad	−8·9	−10·6
Sambhar	−5·1	−10·3
Akola	−8·4	−10·1
Nagpur	−8·5	−10·0

The contrast between the temperature conditions on the 17th and 18th and those on the 28th and 29th was so remarkable that comparative data for these four days for all divisions are given below side by side for comparison:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF			
	17th December.	18th December.	28th December.	29th December.
	°	°	°	°
Burma	+1·0	−0·8	+1·8	−1·2
Assam	−0·7	−0·6	+0·7	+0·6
Bengal	+1·0	+2·2	−0·8	−1·5
Orissa	+5·2	+7·6	−6·5	−4·8
Bihar	+1·3	+2·9	−2·8	−2·9
Chota Nagpur	+5·6	+8·1	−5·1	−3·3
United Provinces of Agra and Oudh.	+5·3	+5·5	−5·3	−3·6
N.-W. F. Province and Punjab	+1·0	+1·6	−3·6	−1·2
Sind	+0·9	+1·6	−1·7	−1·0
Rajputana	+6·4	+4·4	−6·6	−3·7

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of			
	17th December.	18th December.	28th December.	29th December.
	°	°	°	°
Gujarat	+3·1	+2·6	—4·4	—2·8
Central India	+8·8	+9·4	—9·1	—7·7
Central Provinces	+9·4	+10·4	—9·4	—8·6
Berar	+10·0	+9·2	—8·4	—7·2
West Coast	+1·7	+1·5	+0·8	—0·6
Bombay Deccan	+5·8	+5·5	—5·4	—6·8
Mysore	+2·3	+4·1	—1·1	—4·0
Madras coast	+2·8	+4·3	—3·9	—4·9
Madras Deccan	+2·0	+4·5	—5·5	—7·0
South India	+1·6	+2·3	—0·8	—2·5

During the two last days of the month the mean temperature rose very generally and the deficiency was beginning to diminish.

From the 19th onward to the end of the month the weather was quiet over India and the only rainfall was local and unimportant. On the 27th the barometer was reported to be falling fast in Persia and a storm appeared which advanced through Baluchistan on the 28th and entered north-west India on the 29th. The storm did not, however, disturb the existing settled conditions and no precipitation from this source occurred over north-west India.

Pressure.—The mean pressure of the Indian land area was 0·022″ below the normal.

All the stations in the Indian land area reported a deficiency, varying in amount from 0·048″ at Mangalore and Rangoon to 0·001″ at Saugor, and this deficiency was apparently general throughout the whole monsoon area as both southward over the Equatorial belt and westward over Persia and Arabia the mean monthly pressure was low and generally by similar amounts.

Compared with the general condition pressure was locally in defect or the baric anomalies were negative over Burma, Assam, the submontane region of north-east India, the Indus valley, and the west and centre of the Peninsula. The local deficiency was generally small, but exceeded 0·020″ over parts of the Peninsula and over lower Burma. Over the remainder of India, pressure, relatively to the general condition, was in excess. The anomalies were small and with the exception of Saugor were less than 0·02″ at all stations.

At practically all the hill stations the mean pressure of the month was below the normal. In nearly all cases the amount of the deficiency was small and similar to that at the neighbouring plains stations so that the vertical anomalies were generally small and unimportant.

The following table gives the mean pressure variations and anomalies of the month for the eleven meteorological provinces of India:—

Meteorological Province.	Variation from normal of mean 8 A.M. pressure of December 1902.	Pressure anomaly, December 1902.
	″	″
Burma coast and Bay islands	—·034	—·012
Burma inland	—·032	—·010
Assam	—·027	—·005
Bengal and Orissa	—·019	+·003
Gangetic plain and Chota Nagpur	—·019	+·003
Upper Sub-Himalayas	—·014	+·008
North-West Frontier Province, Indus valley and north-west Rajputana.	—·021	+·001
East Rajputana, Central India and Gujarat	—·022	0
Deccan	—·022	0
West Coast	—·029	—·007
South India	—·020	+·002

Temperature.—The variations of the mean temperature conditions of the month were broadly marked and agreed generally with the distribution of rain, cloud and humidity.

The variations in the mean day or maximum temperature were irregularly distributed, the only important and well-marked features having been the depression of temperature over the west of the Peninsula and the Central Provinces and the excess over Tenasserim on the one hand and the Indus valley on the other. The deficiency was more than 3° at Indore (—3°·2); Malegaon (—3°·7); Ahmednagar (—3°·5); Sholapur (—3°·3) and Goa (—3°·7), while the excess was more than 2°·0 at Moulmein (+2°·9) and Kurrachee (+2°·3).

The mean minimum temperature of the month exhibited a much more regular distribution, relatively to the normal. It was in defect over Burma, Assam and northern India. The deficiency was largest along the foot of the hills and over the adjacent plains amounting to —5°·1 at Roorkee, to —3°·1 at Montgomery, to —3°·0 at Mainpuri, Cawnpur, and Gorakhpur and to —3°·1 at Dhubri. The mean minimum temperature exceeded the normal over north Bombay, the Peninsula, the Central Provinces and Tenasserim. The excess was greatest and more than 5° in amount over the interior of the Peninsula and locally at Mergui. On the north-west Himalayas the mean night temperature was generally lower than usual, on the central and eastern Himalayas about normal, and at the central and southern hill stations above the average.

The variations of the mean temperature of the month from the normal were mainly determined by the broadly marked features of the night temperature distribution, so that the mean temperature was lower than usual over northern India and Burma and higher than usual over the greater part of north Bombay, the Peninsula and Tenasserim. The deficiency was greatest over the south and east Punjab (Ludhiana —2°·1) while the excess was considerable over lower Sind (Kurrachee+2°·2), the Deccan (Bellary +3°·0) and Tenasserim (Mergui+3°·5).

On the hills the variations of the mean temperature from the normal were generally unimportant, but in the extreme north-west there was some deficiency.

The following table gives variation data of the month of December for the eleven meteorological provinces:—

METEOROLOGICAL PROVINCE.	VARIATION OF ACTUAL FROM NORMAL OF		
	Mean maximum temperature, December 1902.	Mean minimum temperature, December 1902.	Mean daily temperature, December 1902.
	°	°	°
Burma coast and Bay islands	+0·8	+1·8	+1·3
Burma inland	—0·9	—1·5	—1·2
Assam	—0·6	—2·7	—1·7
Bengal and Orissa	—0·4	—0·9	—0·6
Gangetic plain and Chota Nagpur	—0·4	—1·5	—1·0
Upper Sub-Himalayas	—0·7	—1·9	—1·3
North-West Frontier Province, Indus valley and north-west Rajputana.	+0·6	—1·2	—0·3
East Rajputana, Central India and Gujarat.	—1·4	+0·7	—0·4
Deccan	—1·9	+3·4	+0·8
West Coast	—1·2	+3·3	+1·1
South India	—0·5	+3·1	+1·3

Winds.—Winds were slightly more easterly than usual over the Peninsula, but this variation from the normal direction was much less strongly marked than in the preceding month of November. On the Burma coast and as far north as Chittagong the wind's direction was abnormally northerly, but over Bengal and the Gangetic plain the mean wind directions were about the average. In upper India the wind was, owing to the absence of cold weather storms, both more westerly and steadier than usual, but from the same cause was lighter than usual in force. In the south-east Trades region the winds were approximately normal.

Humidity.—The variations of the mean relative humidity from the normal were in many respects similar to those recorded in the preceding month of November, but the contrasts were stronger. All over northern India, the north of the Bay and Burma, the air, both on the hills and plains, was drier than usual. The greatest deficiency in the mean relative humidity was shown over the east Punjab (Ludhiana —10) the west of the United Provinces (Meerut —12), and eastern Rajputana (Jaipur —14). Over the whole of the Peninsula and the Central Provinces the mean relative humidity was, on the contrary, in excess of the normal and over a considerable part of that area by large amounts. The amount of the excess increased from the coast inland and was greatest and large over Mysore, (Chitaldroog +12), the Bombay Deccan (Belgaum +24) and Berar (Buldana +11). At Leh there was a very large deficiency in the relative humidity, but the variation (—35) at this station is doubtful. In the south-east Trades region the relative humidity was exactly normal.

The following gives variation data of the mean aqueous vapour pressure and of mean humidity of nine meteorological provinces for the month of December 1902:—

METEOROLOGICAL PROVINCE.	MEAN ABSOLUTE HUMIDITY.		MEAN RELATIVE HUMIDITY.	
	Average actual, December 1902.	Variation of actual from normal, December 1902.	Average actual, December 1902.	Variation of actual from normal, December 1902.
	"	"	%	
Burma coast and Bay islands.	·711	—·010	71	— 3
Bengal and Orissa	·452	—·035	69	— 5
Gangetic plain and Chota Nagpur.	·309	—·036	58	— 6
Upper Sub-Himalayas	·230	—.050	55	— 7
North-West Frontier Province, Indus valley and North-west Rajputana.	·287	—·011	52	— 5
East Rajputana, Central India and Gujarat.	·222	—·041	34	— 9
Deccan	·450	+·092	63	+11
West Coast	·681	+·072	71	+ 3
South India	·598	+·092	73	+ 8

Cloud.—The variations in the mean cloud amount of the month agreed closely with the variations in the mean relative humidity. All over northern India and the greater part of Burma, the sky was unusually free from cloud but the maximum variation of this element (—1·0 to —1·9) was shown over the Indus valley and the Punjab instead of as in the case of humidity over the east Punjab and east Rajputana. Over the whole of the Peninsula and the Central Provinces the mean cloud amount was in excess of the average. The amount of the excess increased from the coast inland, and, as was the case with the humidity variations, was greatest over Mysore (Mysore +2·8), the Bombay Deccan (Sholapur +2·9) and Berar and the west of the Central Provinces (Khandwa +2·6). The sky was unusually free from cloud at the Himalayan hill stations and at Srinagar the deficiency was reported to be as much as 3·3. In the south-east Trades region the sky was clearer than usual of cloud.

The following table gives variation data of the mean cloud amount of nine meteorological provinces for the month of December 1902:—

METEOROLOGICAL PROVINCE.	MEAN CLOUD AMOUNT.	
	Average actual, December 1902.	Variation of actual from normal, December 1902.
Burma coast and Bay islands	3·3	—0·1
Bengal and Orissa	2·3	+0·2
Gangetic plain and Chota Nagpur	1·8	+0·3
Upper Sub-Himalayas	1·2	—1·3
North-West Frontier Province, Indus valley and north-west Rajputana.	1·4	—1·1
East Rajputana, Central India and Gujarat	1·4	—0·5
Deccan	4·5	+2·2
West Coast	3·4	+1·8
South India	6·0	+2·0

Rainfall.—The month was practically or actually rainless over the greater part of northern India and upper Burma. Deltaic Bengal and Gujarat, however, received heavier rain than usual. Rain and snow were received at the stations in the Himalayas and on the north-west Frontier, but in the central and Sikkim Himalayas and in the Assam hills the month was practically rainless. Over the whole of the central parts of India, the Peninsula and lower Burma and Tenasserim rain was received and over nearly the whole of that large area the month's rainfall was in excess of the average. This was particularly the case over the west coast, the Deccan and the south of the Peninsula where the normal rainfall was largely exceeded.

Over Afghanistan, Persia and Asiatic Turkey the month was generally very dry and the snowfall on the hills around the north-west frontier was generally lighter than usual.

The following table gives comparative rainfall data of the eleven meteorological provinces or divisions :—

Meteorological Province.	Rainfall.			
	Mean actual for December 1902.	Mean normal for December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Burma Coast and Bay Islands	1·52	0·29	+0·44	+ 44
Burma Inland	0·09	0·40	—0·31	— 78
Assam	0	0·42	—0·42	—100
Bengal and Orissa	0·41	0·22	+0·19	+ 86
Gangetic Plain and Chota Nagpur	0·03	0·18	—0·15	— 83
Upper Sub-Himalayas	0	0·57	—0·57	—100
North-West Frontier Province, Indus Valley and North-West Rajputana	0	0·23	—0·23	—100
East Rajputana, Central India and Gujarat.	0·22	0·19	+0·07*	+ 37
Deccan	1·25	0·36	+0·94*	+261
West Coast	2·98	0·62	+2·36	+381
South India	5·16	2·55	+2·61	+102

* A reference to Table I will show that the means of columns 2 and 3 are derived from a smaller number of stations than the means in the 1st column. The sum of the figures in columns 2 and 3 will, therefore, not agree with the figures in column 1.

General Remarks for the Indian monsoon area.—There was an exceptionally rapid fall and recovery of pressure over western Siberia on the 1st and 2nd December respectively. This oscillation was apparently felt at Kashgar where the barometer fell 0.070″ on the 1st and rose 0·040″ on the 2nd, but was certainly not felt in Kashmir, where the barometer rose more or less briskly during these two days. The oscillation of pressure during the 1st and 2nd over western Siberia amounted to :—

2·233 inches	at Barnaul.
0·696 „	„ Omsk.
1·656 „	„ Tomsk.
1·336 „	„ Irkutsk.

It was so clearly not felt at the Kashmir stations, so that the incident is of interest as showing that very large pressure changes may occur over western Siberia without being felt on the northern Indian frontier. On the other hand, on the 4th and 5th, and 7th and 8th there occurred rapid oscillations of pressure over western Siberia, and on the 9th and 10th there occurred similar large changes at Kashgar, Gilgit and Chitral. On these occasions it would appear that the changes did advance southward from Siberia to Kashmir as the oscillation did not appear to have been connected with changes in Persia. From the 10th to the 21st December practically no observations were received from Siberia. From the 22nd to the 26th reports were received and showed that pressure throughout that period was exceedingly unsteady, but it is impossible to satisfactorily connect these changes with the changes which occurred during the same period at the stations of Kashgar, Gilgit and Chitral. Turning to the countries to the westward of India the same uncertainty as to the connection between the weather changes is shown to exist. Over the Mediterranean pressure was low on the 1st and 2nd and a storm appeared over that sea on the 3rd. This storm held until the 7th on which day another storm appeared over Spain. Neither disturbance advanced eastward so far as it can be traced and between the 7th and 15th pressure was steadily high over south-east Europe and the Caspian region. On the 19th this condition was broken down by a storm which, passing through central Europe, reached the Caspian area on the 19th. From that time till the close of the month pressure was low over the Caspian region and the weather disturbed and cyclonic. Referring now to Asiatic Turkey and Persia it would appear that a brisk fall of the barometer occurred over that area on the 1st and a storm was developed which subsequently advanced eastward through Baluchistan into northern India. The next barometric oscillation over this region occurred between the 4th and the 7th. It was unaccompanied with the formation or appearance of a depression and may have been connected with the Siberian pressure changes. On the 12th and 13th a rapid fall occurred at Baghdad and Bushire succeeded by a rapid recovery and a storm advanced eastward through Baluchistan to India. This storm appeared when pressure was high and steady over south-east Europe and the Caspian region, so that apparently the storm did not reach Persia from countries to the westward. The next considerable barometric change over this area was on the 24th. The barometer then fell rapidly but the fall was not succeeded by the appearance of a depression and may have been connected with the Siberian pressure changes. On the 27th pressure decreased quickly at Teheran and Ispahan and a storm appeared which subsequently advanced through Baluchistan into north-west India.

At the Seychelles the daily changes of pressure were generally slight. The principal falls of the barometer occurred between the 4th and 6th, on the 15th and 16th, and on the 24th and 29th.

The changes between the 4th and 6th were probably connected with the cyclone over the Indian Ocean referred to later on.

The daily variations of pressure from the normal were interesting. From Siberia the information was too fragmentary and incomplete to draw any conclusions, but apparently the conditions of pressure, relatively to the

normal, were different from those to the south of the Himalayas. In Asiatic Turkey the variations from day to day were irregular up to the 14th, but after that they agreed closely with the general variations of the whole monsoon area. At Muscat the pressure ruled below the normal from the 1st to the 16th and above thereafter and very similar variations were reported from Aden and Perim. Over the whole of the remainder of the monsoon area, from Persia and northern India, southward to the Seychelles, the variations were as follows:—from the 1st to the 17th pressure was below the normal; on the 18th, 19th and, in places, on the 20th it was above; from the 21st to the 25th or 26th it was again below, and from the 26th to the end of the month it was above. Most of the unsettled weather of the month occurred during the period of low pressure. There was during that time a cold weather storm over Persia and northern India; a well-marked cyclone over the Arabian Sea and a slight cyclone off the Madras coast. During the existence of the cyclone in the Arabian Sea another storm was formed over the Indian Ocean. There is no information as to the course of this storm, but the centre apparently passed over or near Ambohidempora in Madagascar at 1 P. M. on the 11th December when the barometer is reported to have marked 25·118 (probably uncorrected). There was a considerable depression of the barometer at the Seychelles on the 6th and 7th with moderate rain and squally unsettled weather, but the wind was steady from north-west, and it is very doubtful if the weather over the Indian area was affected by the storm.

Atmospheric Pressure.

The mean pressure of the month of December 1902 was below the normal at all stations within the Indian land area by amounts averaging 0.022″.

In December 1900 and December 1901 the mean pressure of the Indian land area was slightly above the normal and in both years there existed a local deficiency of pressure over Gujarat and Kathiawar, an irregularity in the distribution which in both years—but particularly in the former—resulted in the development of shallow storms over that area. This peculiarity has now disappeared and pressure in the month of December 1902 was not lower in Gujarat than in neighbouring regions.

Compared with the general condition pressure in the month under review was low or the anomalies were negative over (1) Gujarat and the west and centre of the Peninsula (2) over the Indus valley and (3) over Burma, Assam and the submontane districts of north-eastern India. The anomalies were generally small, but exceeded 0·02″ at a few stations in the west and centre of the Peninsula and in lower Burma. The following gives comparative data for the stations in these two areas:—

Area.	Station.	Variation from normal of mean 8 A.M. pressure of December 1902.	Pressure anomaly, December 1902.
		″	″
West and Centre of the Peninsula.	Mangalore	—·048	—·026
	Poona	—·044	—·022
	Gulbarga	—·043	—·021
	Mormugao	—·043	—·021
Lower Burma	Rangoon	—·048	—·026
	Moulmein	—·046	—·024

Over the remainder of India pressure, relatively to the general condition, was in excess, but the anomalies were everywhere small and with the doubtful exception of Saugor did not amount to 0·02″ at any station.

The actual mean distribution of pressure for the month of December 1902 is shown in Pl. I. The mean pressure was highest (30·165″) at Peshawar and lowest (29·800″) at Mangalore. The total pressure difference was thus ·275″ which was slightly greater than usual.

The slight deficiency of pressure, which was general throughout the Indian land area, appears to have extended southward over the Arabian Sea and the Indian Ocean as far as the Equatorial belt, as well as westward over the Arabian Sea to Arabia and over Afghanistan and Persia as far as Asiatic Turkey. The following gives variation data of pressure for the extra Indian stations, and shows that throughout the whole of this large area pressure was slightly below the normal:—

Station.	Variation from normal of mean 8 A.M. pressure of December 1902.
	″
Trincomalee	—·004
Colombo	—·001
Bushire	—·023
Jask	—·049
Muscat	—·017
Baghdad	—·022
Aden	—·007
Perim	+·002
Zanzibar	—.016
Seychelles*	—·032

* From mean of 10 and 16 hours.

Pressure conditions at the level of the hill stations were generally similar to those at the level of the neighbouring plains. With the exception of Srinagar the mean pressure of the month was lower than usual at all the hill stations in India. The deficiency was generally about equal to that on the plains and the vertical pressure anomalies were hence small and of little importance. The following gives data for ten pairs of stations :—

Hill Station.	Variation from normal pressure, December 1902.	Plain Station.	Variation from normal pressure, December 1902.	Vertical pressure anomaly (Hill–Plain)
	"		"	"
Quetta	—·003	Jacobabad	—·027	+·024
Leh	—·001	Lahore	—·006	+·005
Murree	—·015	Peshawar	—·028	+·013
Simla	—·011	Ludhiana	—·007	—·004
Chakrata	—·006	Roorkee	—·008	+·002
Ranikhet	—·009	Bareilly	—·021	+·012
Darjeeling	—·051	Dhubri	—·030	—·021
Mount Abu	—·028	Deesa	—·029	+·001
Pachmarhi	—·033	Khandwa	—·015	—·018
Wellington	—·014	Coimbatore	—·012	—·002

The only important features in the foregoing data are (1) the slight positive vertical pressure anomaly over the Sind-Baluchistan area and (2) the slight negative vertical pressure anomaly over the Central Provinces area, conditions which apparently favoured the appearance of depressions over the central parts of India and were opposed to the appearance of depressions on the north-west frontier.

Barometric depressions and cyclonic storms of the month.

The weather was feebly disturbed both over north-west India and the countries to the westward during the first half of the month but was fairly quiet and settled during the latter half.

Cold weather storm of the 1st to 7th.—On the 1st the barometer was falling in Persia and the wind was southerly to south-easterly at Bahrein and Bushire. Rain had fallen at Bushire, Ispahan and Busrah. The following gives 8 A.M. data for the Persian and Baluchistan stations :—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	"	"	"				Inch.	
Baghdad	30·096	—·005	—·149	Calm	0	2	...	Fine.
Busrah	...	...	...	...	...	..	0·44	Rainy.
Teheran	...	—·080	...	Calm	1	9	...	Cloudy.
Ispahan	...	—·140	...	Calm	1	7	0·06	Ditto.
Bushire	29·996	—·062	—·092	SE	6	10	1·00	Raining.
Bahrein	·904	—·096	...	S	...	...	...	
Jask	30·038	—·039	—·041	NE	16	5	...	Smooth sea.
Quetta	...	+·010	+·050	Calm	1	2	...	
Chaman	...	+·012	+·039	E	3	1	...	

The above shows that the skies were still almost clear over Baluchistan where the barometer was steady.

December 2nd.—Pressure had risen briskly to rapidly in Asiatic Turkey and Persia and had begun to fall in Baluchistan. The following gives 8 A.M. data for Persia and Baluchistan :—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	"	"	"				Inch.	
Baghdad	30·247	+·151	+·006	Calm	0	0	...	Clear.
Busrah	...	+·082	...	...	...	...	...	
Teheran	...	+·030	...	NE	2	5	0·02	Cloudy.
Ispahan	...	+·040	...	Calm	1	3	0·02	Fine.
Bushire	30·030	+·034	—·059	NE	4	7	1·76	Continuous rain.
Bahrein	·001	+·097	...	NW	...	...	...	
Jask	·052	+·014	—·028	ESE	13	9	...	
Quetta	...	—·006	+·055	Calm	1	0	...	
Chaman	...	—·020	+·019	ESE	2	1	...	

The preceding data show that the wind had shifted to north-east at Bushire and Teheran and to north-west at Bahrein with increasing pressure so that the storm had apparently passed these stations. It had given very unsettled weather to Persia, Ispahan and Teheran reporting showers of rain and Bushire nearly 2 inches. In Baluchistan very slight cloud was reported but the weather generally was unaffected.

December 3rd.—The barometer continued to rise in Persia where the wind was northerly to westerly. The

following gives 8 A.M. data for the Persian, Baluchistan and north-west India stations :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Baghdad	30·250	+·003	+·012	Calm	0	2	...	Fine.
Busrah	...	+0·20	...	...	...	...	...	
Teheran	...	+·010	...	NE	1	0	...	
Ispahan	...	+·080	...	WSW	3	0	...	
Bushire	30·103	+·073	+·013	N	5	0	0·12	
Bahrein	·057	+·056	...	W	...	...	...	
Jask	·056	+·004	—·026	NNE	16	6	0·15	
Quetta	...	—·088	—·032	Calm	2	9	...	
Chaman	...	—·062	—·043	Calm	2	6	...	
Kurrachee	30·053	—·060	—·002	N	6	0	...	Dust haze.
Hyderabad	·053	—·061	—·015	N	8	0	...	
Jacobabad	·039	—·103	—·042	Calm	0	6	...	
Mooltan	·065	—·095	—·046	SE	1	7	...	
D. I. Khan	·077	—·081	—·037	Calm	1	5	...	
Peshawar	·115	—·103	—·058	Calm	0	5	...	
Rawalpindi	·121	—·083	—·032	Calm	0	0	...	

The above shows that the slight storm which was passing through Persia had reached the north-west frontier of India. The barometer was falling slightly to briskly over Baluchistan and north-west India and the sky was clouding over but there had been no rain.

December 4th.—The depression lay over the north-west dry area and pressure was giving way over north-west India. The following gives 8 A. M. data for the storm area : —

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Peshawar	30·123	+·008	—·051	Calm	0	5	...	
Khushab	·128	+ 008	—·012?	NE	5	2	...	
D. I. Khan	·052	—·025	—·058	Calm	0	0	...	
Montgomery	·033	—·042	—·061	Calm	3	1	...	
Mooltan	·054	—·011	—·060	Calm	1	0	...	
Sirsa	·021	—·068	—·059	E	2	0	...	
Bikaner	·033	—·047	—·052	Calm	3	0	...	
Ajmer	·083	—·059	—·060	Calm	2	0	...	
Jodhpur	·065	—·020	...	Calm	5	0	...	
Kurrachee	·020	—·033	—·037	Calm	4	0	...	
Hyderabad	·009	—·053	—·070	Calm	1	0	...	
Jacobabad	29·993	—·046	—·091	Calm	0	0	...	
Quetta	...	—·094	—·034	Calm	1	6	...	Showery.
Chaman	...	+.0 0	—·023	S	1	8	0·12	Do.

The above shows that though the weather was slightly cloudy in the north-west the storm had occasioned no rain except a shower at Chaman.

From the above position the storm advanced slowly eastward through the central India Plateau and the United Provinces as far as Bengal where it filled up on the 8th. It hardly affected the weather during its march and its position was only indicated by a slight modification of the wind's direction and by the variations of pressure from the normal.

Cold weather storm of the 13th to 16th :—On the 12th pressure was very low and falling slightly in Persia, but the weather was fine and the winds north-westerly. On the 13th the barometric fall suddenly became very rapid (—·213")at Bushire and the wind shifted to south-east at Bushire and to south at Bahrein. The following gives 8 A. M. data for the Persian and Baluchistan stations.

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Baghdad	29·847	—·103	—·343	Calm	1	8	0·45	Gloomy.
Busrah	...	—·130	...	...	...	...	...	Cloudy.
Teheran	...	—·015	...	Calm	1	8	...	Cloudy.
Ispahan	...	—·100	...	Calm	2	9	...	Cloudy.
Bushire	29·761	—·213	—·344	SE	9	8	...	Squally.
Bahrein	·814	—·101	...	S	...	...	...	
Jask	·958	+·088	—·136	E	10	8	...	
Quetta	...	+·009	—·029	Calm	3	0	...	Frosty.
Chaman	...	+·021	—·066	Calm	5	2	...	

The above shows that a storm lay to the west of the Persian Gulf, that the weather was cloudy and squally at Bushire, Ispahan, Busrah and Teheran, and that rain had fallen at Baghdad, but in Baluchistan calms prevailed, the barometer was steady and the weather was fine.

December 14th.—The following gives 8 A. M. data for the Persian and Baluchistan stations:—

STATION.	PRESSURE.			WIND.				WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	
	"	"	"				Inch.	
Baghdad	30·070	+·223	—·114	Calm	0	●	...	
Busrah	...	+·272	...	...	...	...	...	Cloudy.
Teheran	...	—·090	...	Calm	0	10	0·02	Overcast.
Ispahan	...	—·070	...	NW	4	6	0·82	Snowing.
Bushire	29·978	+·217	—·129	N	16	1	0·08	Sea slight.
Bahrein	·873	+·059	...	WNW	...	...	...	
Jask	·903	—·055	—·192	N	16	0	·0·52	
Quetta	...	—·023	—·051	ESE	3	0	...	Dust haze.
Chaman	...	—·044	—·109	SE	4	8	...	

The barometer had risen very rapidly at Bushire, Busrah and Baghdad and briskly at Bahrein while the winds had shifted to north and west. Pressure had, on the contrary, given way at Jask, Teheran and Ispahan and in Baluchistan where the wind was east-south-easterly. The depression was thus advancing eastward through Persia having given showers to Ispahan, Teheran, Bushire and Jask.

December 15th.—The following gives 8 A. M. data for Persia, Baluchistan and north-west India:—

STATION.	PRESSURE.			WIND				WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	
	"	"	"				Inch	
Baghdad	30·228	+·158	+·038	Calm	0	0	...	
Busrah	...	+·112	...	...	...	...	...	Cloudy.
Teheran	...	+·070	...	Var.	1	4	...	
Ispahan	...	+·160	...	Calm	4	0	...	
Bushire	·119	+·141	+·011	NNE	6	0	...	Sea smooth.
Bahrein	·077	+·204	...	W	...	...	...	
Jask	·004	+·101	—·092	N	24	2	...	Sea slight.
Quetta	...	—·031	—·082	Calm	7	9	0·14	Showery.
Chaman	...	+·010	—·098	SW	19	7	0·81	Dust storm.
Kurrachee	29·999	—·026	—·078	Calm	4	6	...	
Hyderabad	·989	—·043	—·099	NW	9	0	...	
Jacobabad	30·015	—·064	—·084	Calm	0	10	...	
Mooltan	30·065	—·038	—·054	Calm	1	0	...	
D. I. Khan	·064	—·041	—·069	Calm	0	6	...	
Khushab	·107	—·033	—·019	Calm	2	9	...	
Peshawar	·114	—·037	—·065	Calm	1	10	...	
Rawalpindi	·128	—·049	—·033	Calm	0	10	...	

Pressure continued to increase in Persia where the wind blew from between north and west and the weather was fine. There was a strong south-west wind at Chaman and the storm was advancing through Baluchistan, where showers were falling, into upper Sind. In north-west India cloudy weather was appearing.

The depression subsequently passed eastward into the Central India Plateau where it filled up. It occasioned a few drops of rain at Kurrachee and was accompanied with light snow in Kashmir, but otherwise the weather in north-west India was unaffected by the storm.

Cold weather storm of the 27th to 31st.—On the 26th December the barometer began to fall at Bushire with an easterly wind and cloudy weather.

December 27th.—The following gives 8 A. M. data for the Persian and Baluchistan stations:—

STATION.	PRESSURE.			WIND				WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	
	"	"	"				Inch.	
Baghdad	30·247	+·127	+·009	WNW	0	0	...	
Busrah	...	+·193	...	...	...	...	0·33	Cloudy.
Teheran	...	—·210	...	SW	1	2	0·16	Raining.
Ispahan	...	—·190	...	W	8	9	0·42	
Bushire	·069	—·004	—·050	NW	8	10	...	
Bahrein	·060	0	...	SSW	...	...	...	Sea smooth.
Jask	·118	—·001	—·017	NNW	7	0	...	Frosty.
Quetta	...	+·002	+·086	Calm	1	0	...	
Chaman	...	—·015	+·054	E	4	1	...	

The preceding data show that the barometer had risen rapidly at Baghdad and Busrah while it had fallen about 0·20" at Ispahan and Teheran and that a depression lay over central Persia. The wind was north-westerly at Bushire and south-westerly at Bahrein. Light showers of rain had fallen over central Persia and at Busrah. In Baluchistan the weather was fine and the barometer steady.

December 28th.—The following gives 8 A.M. data for the Persian and Baluchistan stations:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Baghdad	30·232	—·015	—·001	S	0	8	...	Gloomy.
Busrah	...	+·056	...	...	...	...	...	
Teheran	...	+·100	...	NNE	6	4	...	
Ispahan	...	+·040	...	Calm	9	0	0·15	Sea slight.
Bushire	30·204	+·135	+·085	NW	18	0	0·02	
Bahrein	·169	+·109	...	WNW	...	..	...	
Jask	·102	—·016	+·001	ENE	7	0	...	Dust haze.
Quetta	...	—·087	0?	Calm	3	0	...	
Chaman	...	—·109	—·053	SSW	4	0	...	

The above shows that pressure had increased rapidly at Bushire and Bahrein where the wind was north-westerly. Pressure had, on the contrary, fallen fast in Baluchistan where the wind was south-south-westerly. The storm was thus advancing through eastern Persia into Baluchistan. A light shower of rain had been received at Bushire and Ispahan.

December 29th.—The following gives 8 A.M. data for Baluchistan and north-west India:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Quetta	...	—·027	—·026	E	3	0	...	Dust haze.
Chaman	...	—·020	—·071	S	10	8	...	Dust storm
Kurrachee	30·115	—·049	+·029	N	3	5	...	Dust haze.
Hyderabad	·117	—·033	+·023	N	2	5	...	
Jacobabad	·121	—·031	+·005	Calm	0	3	...	
D. I. Khan	·173	—·033	+·027	Calm	1	0	...	
Mooltan	·150	—·050	+·014	Calm	1	2	...	
Sirsa	·172	—·058	+·049	Calm	1	0	...	
Montgomery	·155	—·057	+·035	SE	4	4	...	
Khushab	·183	—·042	+·050	Calm	2	4	...	
Peshawar	·199	—·060	—·002	Calm	1	6	...	
Rawalpindi	·202	—·052	+·010	Calm	0	2	...	
Murree	...	—·020	+·044	SE	7	7	...	

Pressure had given way slightly to briskly over north-west India where the weather was cloudy. The storm had advanced quickly and lay over north-west India, but it was a feeble disturbance and no rain was falling. The storm continued to be shown during the 30th and 31st as it advanced eastward through Rajputana, but it was at no time of any importance.

Cyclonic storm of the 1st to 13th in the Arabian sea.—At the commencement of the month pressure exceeded the normal over the whole of northern India and the north of the Peninsula, but was low over the south of the Peninsula and Ceylon. Between Ceylon and the Maldive Islands a shallow depression was developed on the 1st. It hovered over this region during the next two days and then moved westward out into the Arabian Sea.

December 1st.—The barometer was falling slowly along the west coast of the Peninsula and over Ceylon and was actually lowest at Colombo. The following gives 8 A.M. data for the west coast ports:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND. Direction at 8 A.M.	WIND. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Trivandrum	29·850	+·016	—·040	Calm	4	10	...	
Colombo	·840	—·012	—·050	ENE	6	10	0·18	Sea slight.
Minicoy	·859	—·012	...	NE	6	8	0·12	Cloudy.
Cochin	·857	—·001	—·038	ENE	5	9	...	
Calicut	·850	—·008	—·053	E	6	10	...	
Mangalore	·845	—·018	—·070	ESE	2	8	...	Sea smooth.
Karwar	·892	—·010	—·032	Calm	2	4	...	
Goa	...	...	...	E	...	3	...	
Ratnagiri	·919	—·020	—·019	E	14	7	...	Sea smooth.
Bombay	·955	—·020	—·016	ENE	11	2	...	
Surat	30·008	—·006	+·018	E	6	0	...	
Bhavnagar	·038	—·005	+·012	NW?	4	0	...	
Para. Veraval	29·980	—·013	·005	NE	6	0	...	Sea smooth.

The wind was easterly at all the west coast ports and light rain was falling at Colombo and Minicoy. The following gives marine information for this day:—

NAME OF VESSEL OR STATION.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer as corrected by Bombay Office.	WIND. Direction.	WIND. Force.	WEATHER.
	° ′	° ′	"			
S.S. *Epsom*	4 07	79 52	...	ESE	4	Showery.
S.S. *Wistow Hall*	6 03	81 17	29·805	ENE	2	Overcast; 4 A.M. heavy squalls.
S.S. *Historian*	6 40	77 57	·939	ESE	.	Heavy head sea and squally and rainy.
S.S. *Manora*	6 49	82 01	30·069	Var.	2	4 A.M. heavy rain

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Bombay office.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			Cloudy. 8 P.M. passing squalls.
S.S. *Cymbeline* .	7 07	82 20	29·524	Var.	1	Light showers. Noon heavy rain.
S.S. *Alboin* .	7 22	77 59	·850	ENE	5	Moderate sea and fine. 4 A.M. squally.
S.S. *Knight Templar.*	9 01	67 03	...	NE	4	Passing squalls.
S.S. *Carthage* .	9 27	65 42	·890	NE by N	5	Fine. Noon squally.
S.S. *Chindwara* .	10 06	76 03	·843	N	4	4 P.M. cloudy.
S.S. *Safari* .	12 47	67 37	·891	NE	4	Smooth sea and fine.
S.S. *Itaura* .	13 46	74 10	·799	E	4	Smooth sea. 4 A.M. fine.
S.S. *Okhla* .	16 35	73 09	·890	NE	2	

The wind was easterly on board the *Epsom*, the *Alboin* and the *Historian* off the Ceylon coast and the weather squally and rainy, while north-east winds were reported from Minicoy and Amini Divi. Over this area the shallow depression was developed.

December 2nd.—The barometer was falling over the extreme south of the Peninsula—briskly at Trivandrum—and the depression had developed slightly. The following gives 8 A.M. data for the west coast ports:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	WIND Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	″	″	″				Inch.	
Colombo .	29·864	+·024	—·026	NE	4	8	0·83	Sea slight.
Amini Divi .	·874	+·003	—·047	NE	...	5	...	
Minicoy .	·855	—·004	...	NE	5	7	0·07	
Trivandrum	·796	—·054	—·093	S	3	8	0·07	
Cochin .	·843	—·014	—·053	NE	7	9	0·02	
Calicut .	·847	—·003	—·057	E	6	9	...	Sea smooth.
Mangalore .	·866	+·021	—·051	ESE	2	8	...	Do.
Karwar .	·898	+·006	—·028	E	2	5	...	
Goa . .	...	...	...	ENE	...	10	...	
Ratnagiri .	·951	+·032	+·012	ESE	13	7	...	
Bombay .	·986	+·031	+·014	ENE	13	0	...	
Surat . .	30·030	+·022	+·039	E	6	0	...	
Bhavnagar	·067	+·029	+·039	W?	5	0	...	
Para. Veraval .	29·999	+·019	+·012	NE	9	0	...	Sea smooth.

The wind was easterly along the greater part of the west coast, north-easterly at Colombo, Amini Divi and Minicoy, and southerly at Trivandrum, showing the cyclonic circulation around the low pressure area over the south-east of the sea.

The following gives marine data for this day for the east of the sea:—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Bombay office.	WIND Direction.	Force.	WEATHER.
	° ′	° ′	″			
S.S. *Epsom* .	Colombo		...	NE	...	4 A.M. fine.
S.S. *Nawab* .	7 19	79 31	29·827	NE	4	Fine.
S.S. *Knight Templar.*	8 32	70 52	...	NE	5	Cloudy. Noon squally.
S.S. *Carthage* .	8 49	70 30	·847	NNE	3	Overcast. 8 P.M. heavy rain.
S.S. *Alboin*	10 02	76 02	·790	NNE	4	Midnight hazy.
S.S. *Itaura* .	10 37	75 44	·782	E	6	Fine.
S.S. *Chindwara*	13 35	74 22	·886	ENE	5	Fine.
S.S. *Safari* . .	14 16	70 51	·891	NE	3	Noon cloudy.
S.S. *Pemba* .	* Bombay		·891	E	4	Fine.

* Noon position.

There was nothing of any importance in the above returns. Light to fresh north-east winds and fair weather prevailed.

December 3rd.—The following gives 8 A.M. data for the west coast ports: –

STATION.	PRESSURE. 8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	WIND. Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	″	″	″				Inch.	
Trivandrum	29·848	+·052	—·044	ENE	4	9	0·14	Thunder.
Amini Divi	·856	—·018	—·067	NNE	...	4	...	
Minicoy .	·840	—·015	...	E	6	7	0·11	Cloudy.
Cochin .	·841	—·002	—·055	NE	7	8	...	
Calicut .	·831	—·016	—·075	E	5	0	...	
Mangalore .	·835	—·031	—·084	ESE	1	0	...	Sea smooth.
Karwar .	·892	—·005	—·036	E	4	6	...	
Goa . .	...	...	...	E	...	3	...	Squally.
Ratnagiri .	·941	—·010	0	E	12	6	...	Sea smooth.
Bombay .	·965	—·021	—·007	ENE	12	0	...	
Surat .	·984	—·046	—·009	E	5	0	...	
Bhavnagar	30·021	—·046	—·009	N W?	4	0	...	
Para. Veraval .	29·956	—·043	—·033	NE	9	0	...	Sea smooth.

The storm had apparently drifted slightly to the westward and a recovery had taken place at Trivandrum, but otherwise there had been no important change. The wind had, however, shifted to the eastward, both at Trivandrum and Minicoy indicating some change in the position of the

central area of depression. The following gives marine data for this day :—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer as corrected by Bombay office.	WIND Direction.	WIND Force.	WEATHER.
	° ′	° ′	″			
S. S. *Nawab*	Colombo		29·847	...	...	8 P.M. cloudy.
S. S. *Lake Manitoba*	7 47	62 00	·870	NE	4	Fine.
S. S. *Itaura*	7 53	77 36	·799	NE	6	Moderate sea and light rain. Noon occasional rain squalls.
S. S. *Carthage*	8 08	75 17	·869	E	1	Fine. Midnight heavy rain.
S. S. *Knight Templar*	8 10	74 34	...	NE	2	Overcast.
S. S. *Epsom*	8 22	76 42*	...	ENE	4	Overcast. 8 P.M. heavy rain.
S. S. *Alboin*	13 20	74 29	·860	NE by E	6	Clear.
S. S. *Chindwara*	17 08	73 03	·929	ENE	4	Slight sea and fine.

*Noon position.

The above data show that the wind had shifted to the eastward over the south-east of the sea and that slight rain and squalls prevailed but otherwise there had been no change of importance.

December 4th.—The following gives 8 A.M. data for the west coast ports :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND Direction at 8 A.M.	WIND Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	″	″	″				Inches	
Amini	29·860	+·004	—·064	E	...	10	0·22	
Minicoy	·861	+·021	...	SE	10	8	0·07	
Trivandrum	·858	+·010	—·034	Calm	3	10	0·22	Thunder.
Cochin	·859	+·018	—·039	NE	4	1	0·46	Sea smooth.
Calicut	·854	+·023	—·055	E	6	10	1·35	Do.
Mangalore	·843	+·008	—·078	ESE	2	10	...	Do.
Karwar	·870	—·022	—·060	E	3	0	...	
Goa	...	...	...	E	...	3	...	
Ratnagiri	·896	—·045	—·046	ESE	10	8	...	
Bombay	·914	—·051	—·059	ENE	9	5	...	
Surat	·958	—·026	—·036	E	4	2	...	
Bhavnagar Para.	·991	—·030	—·042	NW?	2	0	...	
Veraval	·937	—·019	—·054	NE	8	4	...	Sea smooth.

Pressure had again increased slightly over the extreme south of the Peninsula where the wind was easterly and light rain was falling. At Minicoy the wind had shifted from east to south-east and at Amini Divi from north-east to east.

The following gives marine data for this day :—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	8 A.M. POSITION. Long. E.	Barometer as corrected by Bombay office.	WIND Direction.	WIND Force.	WEATHER.
	° ′	° ′	″			
S. S. *Patiala*	5 54	56 31	29·845	NNE	5	Moderate sea and overcast ; 8 P.M. heavy squalls from north-east and light rain.
R. I. M.S. *Canning*	6 52	79 12	·860	N	2	Smooth sea and fine.
S. S. *Lake Manitoba*	10 50	64 46	·830	NNE	6	Fine. Noon showery.
S. S. *Epsom*	11 31	75 15	...	Var.	2	Cloudy.
S. S. *Ballaarat*	14 27	73 51*	·854	E	4	Noon fine.
S. S. *Caledonia*	16 36	61 46	·954	ENE	4	Fine.
S. S. *Alboin*	16 44	73 14	·860	NbyE	4	Clear.
S. S. *Abergeldie*	17 21	65 42	...	ENE	4	Fine.
S. S. *Mosaffari*	17 25	64 55	·981	NE	5	Moderate sea and overcast. 4 A.M. heavy passing squalls.
S. S. *Persia*	17 42	65 05	·891	NNE		Fine.
S. S. *Mohammadi*	18 12	69 36*	...	N	2	Fine.
S. S. *Booldana*	Bombay		·895	...	...	4 P.M. fine.

*Noon position.

The *Lake Manitoba* in Lat. 10° 50′ N. and Long. 64° 46′ E. had a strong north east wind but there were no ships in the immediate neighbourhood of the storm. Apparently the disturbance had travelled quickly west by north and the centre probably lay in about Lat. 8° N. and Long. 68° E.

December 5th.—The following gives 8 A.M. data for the west coast ports :—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	PRESSURE. Change in past 24 hours.	PRESSURE. Variation from normal.	WIND Direction at 8 A.M.	WIND Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	″	″	″				Inch.	
Amini Divi	29·817	—·043	—·108	S	...	8	0·20	
Minicoy	·814	—·047	...	S	11	7	0·11	Cloudy.
Trivandrum	·865?	+·007?	—·030?	Calm	2	10	0·95	Thunder.
Cochin	·838	—·021	—·061	NE	3	5	0·43	Sea smooth.
Calicut	·821	—·033	—·089	SSE	5	8	0·46	Thunder.
Mangalore	·807	—·036	—·116	Calm	1	8	0·03	Sea smooth.
Ratnagiri	·843	—·053	—·099?	ESE	7	4	...	Do.
Bombay	·861	—·053	—·113	ENE	8	5	...	
Karwar	·824	—·046	—·107	E	3	7	...	
Surat	·899	—·059	—·098	NE	4	4	...	
Bhavnagar Para.	·934	—·057	·101	W?	3	0	...	
Veraval	·889	—·048	—·104	NE	7	7	...	Sea smooth.

The barometer had fallen all along the west coast with easterly winds and some rain, but the changes appeared to be no longer connected with the depression over the sea area. The following gives marine data for this day :—

NAME OF VESSEL OR STATION.	8 A.M. POSITION.		Barometer as corrected by Bombay office.	WIND		WEATHER.
	Lat. N.	Long. E.		Direction.	Force	
	° ′	° ′	″			
S. S. *Somali* . .	5 24	55 12	·830	N	5	High sea and overcast.
S. S. *Patiala* .	7 55	59 17	·755	NNW	6	High sea and overcast. Midnight heavy rain.
S. S. *Massilia* .	7 56	77 09*	·724	N	4 to 6	Heavy rain 4 A.M. heavy squalls of wind and rain.
S. S. *Santhia* . .	8 00	77 24	·845	W	2	Fine.
R. I. M. S. *Canning*	9 05	76 34	·862	NW	2 to 3	Smooth sea and cloudy. Midnight rainy.
S. S. *Hohenfels*	10 16	58 57	·879	NE	6	
S. S. *Ballaarat* .	10 51	75 32	·859	E	2 to 4	Fine. 4 P.M. frequent rain squalls.
S. S. *City of Bombay*	11 19	56 38	...	N	5	Rough sea and cloudy.
S. S. *Lake Manitoba*	14 00	67 51	·810	NE byN	5	Fine.
S. S. *Australia* .	14 55	55 53	·943	ENE	4	Rough sea and cloudy.
S. S. *Epsom* . .	15 13	73 37	...	Var.	2	Fine.
S. S. *Booldana* .	16 05	73 16	·834	NE	2	Cloudy. Midnight rainy.
S. S. *Caledonia* .	17 41	67 50	·900	NE	3	Fine.
S. S. *Mohammadi* .	17 51	66 27	...	NNE	4	Fine.
S. S. *Mozaffari* .	18 02	68 10	·921	NE	5	Overcast.
S. S. *Abergeldie* .	18 11	69 24	...	ENE	5	Fine.
S. S. *Persia* . .	18 22	68 44	·831	NNE	5	Fine.

* Noon position.

The information on this day was scattered and gave very little information as to the storm's position. The wind was southerly at Amini Divi and Minicoy and north-easterly over the north of the sea, while the *Patiala* in Lat. 7°55′ N. and Long. 59° 17′ E. reported a strong north-north-west wind with a heavy rain storm at midnight. The approximate position of the storm centre was Lat. 8° 30′N. and Long. 65° E.

December 6th.—The following gives 8 A.M. data for the west coast ports :—

STATION.	PRESSURE.			WIND		Cloud.	Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	″	″	″				Inches	
Amini Divi	29·800	—·017	—·126	S	...	9	0·38	
Minicoy .	·809	—·005	...	SSE	10	6	...	Cloudy.
Trivandrum	·837	—·028?	—·060	Calm	3	10	0·28	Thunder.
Cochin .	·830	—·008	—·070	ENE	3	3	0·19	Sea smooth.
Calicut .	·807	—·014	—·104	E	8	10	2·43	Do.
Mangalore .	·781	—·026	—·145	Calm	1	9	0·82	Thunder storm.
Karwar .	·790	—·034	—·143	Calm	2	7	2·47	Do.
Goa . .	...	...	...	Calm	...	10	0·76	Showery.
Ratnagiri .	·814	—·029	—·129?	ESE	7	8	...	
Bombay .	·804	—·037	—·171	E	7	10	...	
Surat .	·835	—·064	—·163	ESE	5	1	...	
Bhavnagar Para.	·893	—·041	—·145	NW?	4	0	...	
Veraval .	·830	—·059	—·165	NE	7	1	...	Sea smooth.

Pressure had continued to decrease along the west coast and the wind had shifted to south-east showing that the influence of the storm was extending. At Minicoy and Amini Divi the wind remained southerly. Rain was extending northward along the coast.

The following gives marine data for this day:—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer as corrected by Calcutta office.	WIND.		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	″			
S.S. *Somali* .	7 06	57 38	29·779	N	7 to 8	Very high sea and cloudy.
S.S. *Patiala* .	8 59	60 57	·735	NW	8	Rainy. 4 A.M. heavy squalls of rain.
S.S. *Hohenfels* .	10 19	61 26	·829	N	7	
S.S. *City of Bombay*.	10 39	60 36	...	N	6	Heavy sea and heavy squalls. 4 P.M. fierce rain squalls.
S.S. *Santhia* .	11 04	75 27	·810	ENE	2	Fine. 4 A.M. thick rainy.
S.S. *Massilia* .	11 04	75 26	·738	Var	3	Rainy. Midnight continuous heavy rain.
S.S. *Mombassa* .	11 11	56 05	·855	NE	6	High sea and overcast.
R.I.M.S. *Canning*	12 34	74 37	·815	SE	3 to 4	Overcast. 8 P.M. squally.
S.S. *Australia* .	15 32	59 00	·663	NNE	5	Rough sea and fine.
S.S. *Mohammadi*	17 17	62 22	...	NE	4	Moderate sea and fine.
S.S. *Lake Manitoba*.	17 22	70 57	·870	NE	4	Fine.
S.S. *Mozaffari* .	18 43	71 36	·841	E	2	
S.S. *Dumra* .	Bombay.		·735	NE	2	4 A.M. clear.
S.S. *Henry Bolckow*.	19 30	71 01	·820	ESE	2	Fine.

The above shows that a very complete cyclonic circulation of the winds prevailed over the Arabian Sea. The

strongest winds were reported from the south-west quadrant of the storm area where the *City of Bombay*, in Lat. 10° 39′ N. and Long. 60° 36′ E. reported a strong northerly wind with fierce rain squalls, the *Hohenfels* in Lat. 10°19′ N. and Long. 61° 26′ E. reported a moderate northerly gale, the *Somali* in Lat. 7° 6′ N. and Long. 57° 38′ E. a fresh northerly gale and the *Patiala* in Lat. 8° 59′ N. and Long. 60° 57′ E. a north-west fresh gale and heavy squalls. There were again no ships in the immediate neighbourhood of the storm, and the assigned position of the centre, *viz.*, Lat. 9° 10′ N. and Long. 64° 40′ E., is only approximate.

December 7th.—The following gives 8 A.M. data for the west coast ports:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours	Cloud.	Rainfall.	Weather.
	"	"	"				Inch.	
Amini Divi.	29·823	+·023	—·105	SE	...	6	...	
Minicoy .	·804	—·005	...	ESE	11	7	...	Cloudy.
Trivandrum	·845	+·008	—·053	Calm	1	10	...	
Cochin .	·865	+·035	—·086	NE	2	9	...	
Calicut .	·847	+·040	—·066	ENE	9	9	0·02	Sea slight.
Mangalore.	·830	+·049	—·097	ESE	2	3	...	Sea smooth.
Karwar .	·837	+·047	—·097	Calm	2	7	0·18	
Goa . .	...	...	...	SE	...	8	0·64	Showery
Ratnagiri .	·855	+·041	—·088	ESE	8	10	0·10	Sea smooth.
Bombay .	·867	+·063	—·109	E	9	0	0·02	
Surat .	·887	+·052	—·113	E	4	8	...	
Bhavnagar Para.	·907	+·014	—·133	SW?	2	9	...	
Veraval .	·858	+·028	—·138	NE	4	9	...	

The barometer had risen generally and the wind had backed towards east. Rain had continued to extend northward. The winds were south-easterly at Minicoy and Amini Divi.

The following gives marine data for this day:—

Name of Vessel.	8 A.M. position. Lat. N.	8 A.M. position. Long. E.	Barometer as corrected by Bombay office.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	"			
S.S. *Somali* . .	8 29	60 05	29·756	NNW	8	High sea and overcast. Midnight, rain squalls.
S.S. *City of Bombay*	9 37	64 29	...	ESE	5	Rainy. Noon, heavy rain squalls.
S.S. *Hohenfels*	9 52	65 05	·819	SE	5	
S.S. *Mombassa* .	10 17	60 05	·739	NE	6	High sea and over cast. Midnight squally with light rain.
S.S. *Patiala* . .	10 50	62 49	·705	NW by N	9	High sea and passing rain squalls. 4 A.M. incessant rain.
S.S. *Clan Buchanan*	11 06	56 49	29·919	N	5	Beam sea and fine. 4 A.M. squally.
S.S. *Collegian* .	11 49	52 21	...	NE	6	Rough head sea and fine.
S.S. *Bohemia* . .	12 10	55 11	·916	NNE	6	High sea.
S.S. *Pandit* . .	12 14	48 48	·975	ENE	3	Fine.
S.S. *City of Dundee*	15 24	56 21	·886	NNE	5	Moderate sea.
S.S. *Australia* .	16 12	61 53	·933	NNE	5	Heavy passing clouds.
S.S. *Mohammadi* .	16 31	58 13	...	NE	5	Moderate sea and fine.
S.S. *Elsa* . .	17 02	60 46	·767	E	6	Rough sea and squally with rain.
S.S. *Egypt* . .	17 46	67 49*	·803	NNE	3 to 4	Cloudy. 4 A.M. heavy rain.

* Noon position.

There was again comparatively little information for the sea area, but there were several ships in the neighbourhood of the centre which on this day was placed in Lat. 10° N. and Long. 64° E. The *City of Bombay* in Lat. 9°37′ N. and Long. 64° 29′ E. and the *Hohenfels* in Lat. 9° 52′ N. and Long. 65° 5′ E. were to the south-east of the centre and reported south-east and east-south-east fresh winds and heavy squalls, while the *Somali* in Lat. 8° 29′ N. and Long. 60° 5′ E., the *Mombassa* in Lat. 10°. 17′ N. and Long. 60° 5′ E., and the *Patiala* in Lat. 10° 50′ N. and Long. 62° 49′ E. lay to the west of the storm and reported north-east to north-north-west winds, strong to a hard gale with squalls and incessant rain.

December 8th.—The following gives 8 A.M. data for the west coast ports:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	"	"	"				Inches	
Amini Divi.	29·843	+·020	—·086	S	...	0	0·05	
Minicoy .	·814	+·010	...	ESE	14	6	...	Cloudy.
Cochin .	·851	—·014	—·052	NE	4	3	...	Sea smooth.
Calicut .	·829	—·018	—·085	ESE	5	1	...	
Mangalore .	·829	—·001	—·099	ESE	1	3	1·32	Thunderstorm.
Karwar .	·843	+·006	—·093	Calm	2	3	...	
Goa . .	...	...	...	E	...	3	...	
Ratnagiri .	·870	+·015	—·074	ESE	7	0	...	Sea smooth.
Bombay .	·907	+·040	—·070	ENE	11	10	0·32	Showery.
Surat .	·945	+·058	—·055	E	7	5	...	
Bhavnagar Para.	·975	+·068	—·066	SE	6	8	...	
Veraval .	·917	+·059	—·080	ENE	6	7	...	Sea smooth.

Pressure was beginning to give way again in Malabar. The winds were easterly along the coast, and south-easterly to southerly at Minicoy and Amini Divi.

The following gives marine data for this day:—

Name of Vessel.	8 A.M. position. Lat. N.	Long. E.	Barometer as corrected by Bombay office.	Wind Direction.	Force.	Weather.
	° ′	° ′	″			
S.S. *City of Bombay.*	9 17	68 19	...	SE	5	Rough confused sea, overcast and squally wind.
S.S. *Hohenfels*	9 30	69 11	29·949	SE	5	
S.S. *Mombassa*	9 30	64 25	·660	NW	5	Overcast. 4 P.M. frequent rain squalls.
S.S. *Somali* .	10 07	62 24	·708	N by W	8	High sea and cloudy. 8 P.M. light rain squalls.
S.S. *Clan Buchanan.*	10 17	61 31	·889	N by E	6	Beam sea and cloudy. 4 A.M., squally.
S.S. *Collegian* .	11 04	56 26	...	NNE	6	High beam sea and heavy squalls.
S.S. *Bohemia* .	11 40	57 59	·886	NNE	6	Heavy rain.
S.S. *Patiala* .	13 13	63 29	·745	NNE	6	Continuous heavy rain. 4 A.M. very heavy squalls of rain.
S.S. *City of Dundee.*	16 05	59 45	·840	NNE	5	Considerable sea. 4 P.M. overcast.
S.S. *Egypt* .	16 39	62 48	·844	NE	5	Cloudy.
S.S. *Australia* .	16 50	64 30	·933	ENE	6	High sea and overcast. 8 P.M. very heavy rain squalls.
S.S. *Santhia* .	17 58	72 48	·879	ENE	2	Fine.
R.I.M.S. *Canning.*	Bombay*		·923	NNE	4	Smooth sea and rainy.
S.S. *Bancoora* .	19 34	71 37	·812	E	2	Fine. 4 P.M. occasional drizzle.

* Noon position.

The winds continued to show a very complete cyclonic circulation around a centre apparently in Lat. 12° N. and Long. 64° E. The storm had consequently begun to advance north-eastward. The *City of Bombay* and the *Hohenfels* still to the south-eastward of the centre continued to report south-east winds, while the *Mombassa*, the *Patiala*, the *Somali* and the *Clan Buchanan* to the west of the storm experienced northerly to north-westerly winds strong to a gale in force with heavy rain.

December 9th.—The following gives 8 A.M. data for the west coast ports:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Wind Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	″	″	″				Inch.	
Amini Divi .	29·859	+·016	—·072	S	...	5	0·05	
Minicoy .	·846	+·032	...	ESE	15	0	...	
Trivandrum	·873	+·026	—·028	Calm	2	10	0·03	Thunder.
Cochin .	·883	+·032	—·021	NE	4	7	...	Sea smooth.
Calicut .	·869	+·040	—·047	ENE	5	9	0·01	Sea slight.
Mangalore .	·862	+·033	—·067	ESE	2	6	...	Sea smooth.
Goa . .	...	...	...	ENE	...	10	...	
Karwar .	·854	+·011	—·083	E	2	6	...	
Ratnagiri .	·873	+·003	—·072?	SE	8	6	...	
Bombay .	·889	—·018	—·089	ENE	11	9	...	
Surat . .	·918	—·027	—·085	E	7	9	...	
Bhavnagar Para.	·959	—·016	—·085	SW?	7	8	...	
Veraval .	·923	+·006	—·076	N	9	9	...	Sea smooth.

The barometer was steady or rising slightly along the west coast with easterly winds.

The following gives marine data for this day:—

Name of Vessel.	8 A.M. position. Lat. N.	Long. E.	Barometer as corrected by Bombay office.	Wind Direction.	Force.	Weather.
	° ′	° ′	″			
S.S. *Mombassa* .	9 11	68 55	29·830	SSE	5	Moderate sea and cloudy.
S.S. *Clan Buchanan*	9 44	64 13	·819	S	5	Fresh sea. 4 A.M. continuous rain.
S.S. *Bohemia* . .	10 56	60 51	·866	Nby E	4	Cloudy. 4 A.M. showery.
S.S. *Pandit* . .	11 18	55 55	·915	NNE	5	Rough confused sea and squally.
S.S. *Somali* . .	12 20	65 10	·732	SSW	7	Rising sea and overcast. 4 A.M. heavy rain.
S.S. *Falls of Keltie*	15 03	55 02	...	NE	6	High sea.
S.S. *Patiala* . .	15 09	65 35	·695	NE	9	High confused sea and cloudy. Noon heavy rain.
S.S. *Egypt* . .	15 19	56 56	·884	NE	4 to 5	Moderate north-east sea and cloudy.
S.S. *Rajah* . .	16 03	73 14	·794	SSE	3 to 4	Fine.
S.S. *City of Dundee*	16 39	62 29	·828	NE	6	Squally and heavy rain.
S.S. *Australia* .	17 37	67 36	·943	ENE	2 to 4	Constant rain. Noon very heavy constant rain.

The storm had apparently continued to advance north-eastward and the centre lay approximately in Lat. 14° N. and Long. 64° E., and the winds exhibited a general indraught towards this centre. The *Patiala* and the *City of Dundee* experienced north-east winds strong to a gale with heavy rain, while the *Somali* reported a south-south-west moderate gale and heavy rain.

December 10th.—The following gives 8 A.M. data for the west coast ports:—

STATION.	PRESSURE.			WIND			Rainfall.	WEATHER.
	8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.		
	"	"	"				Inch.	
Amini Divi .	29·844	—·015	—·089	S	...	0	...	
Minicoy .	·847	+·001	...	SSE	12	8	...	
Trivandrum	·836	—·037	—·066	NE	2	6	0·04	Thunder.
Cochin .	·857	—·026	—·048	NE	4	2	...	Sea smooth.
Calicut .	·845	—·024	—·073	NNE	5	0	0·18	
Mangalore.	·839	—·023	—·092	ESE	1	0	...	Sea smooth.
Karwar .	·842	—·012	—·097	E	3	0	...	
Goa . .	...	...	...	E	...	8	...	
Ratnagiri .	·859	—·014	—·088	Calm	6	10	0·12	Sea smooth.
Bombay .	·845	—·044	—·134	E	7	10	0·02	
Surat .	·860	—·058	—·143	E	5	8	...	
Bhavnagar Para.	·899	—·060	—·147	NE	4	5	...	
Veraval .	·896	—·027	—·104	WNW	5	9	...	Sea smooth.

The barometer was now giving way all along the west coast, the fall being greatest in Kathiawar. The winds continued southerly at Minicoy and Amini Divi and easterly at the coast ports.

The following gives marine data for this day:—

NAME OF VESSEL.	8 A.M. POSITION.		Barometer, as corrected by Bombay office.	WIND		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	"			
S.S. *Collegian* .	9 37	65 04	...	SW	3	High confused sea and passing squalls of wind and rain.
S.S. *Chilka* .	12 59	74 33*	29·952	E	2	Fine.
S.S. *Yamaguchi Maru.*	13 45	74 19	·837	Var.	1	Cloudy. 8 P.M. passing showers.
S.S. *Somali* .	14 53	68 12	·732	S	8 to 7	Rain and heavy wind squalls. 8 P.M. continuous rain.

* Noon position.

NAME OF VESSEL.	8 A.M. POSITION.		Barometer as corrected by Bombay office.	WIND		WEATHER.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	"			
S.S. *Patiala* .	15 21	67 52	29·725	S	4	High sea and overcast, Midnight squally.
S.S. *Nisam* .	15 28	73 30*	·779	NW by N	2	Fine.
S.S. *Marquis Bacquehem.*	16 03	73 21	...	Var.	1	Heavy rain.
S.S. *City of Dundee.*	17 20	65 29	·739	NE	5	Frequent rain squalls.
S.S. *Australia* .	18 30	71 08	·913	SSE	5	Moderate sea and continuous rain.

* Noon position.

The winds exhibited a fairly well-marked cyclonic circulation, but the marine information was very scanty. The storm had apparently continued to progress north-eastward and the storm's centre lay approximately in Lat. 16° N. and Long. 66° E. The *Patiala* and the *Somali* to the east of the centre reported southerly winds, moderate to a gale in force with heavy squalls, while the *City of Dundee* to the north of the storm had a fresh north-east wind and frequent rain squalls.

December 11th.—The following gives 8 A.M. data for the west coast ports:—

STATION.	PRESSURE.			WIND		Cloud.	Rainfall.	REMARKS.
	8 A.M. reduced to sea level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.			
	"	"	"				Inch	
Amini Divi .	29·861	+·017	—·073	SE	...	2	0·02	
Minicoy .	·858	+·011	...	SSE	10	8	...	
Trivandrum	·888	+·052	—·016	Calm	2	10	...	
Cochin .	·875	+·018	—·031	NE	3	9	...	
Calicut .	·876	+·031	—·043	ENE	5	10	...	Sea smooth.
Mangalore.	·843	+·004	—·090	Calm	1	0	...	Do.
Goa . .	...	...	...	E	...	10	0·28	Showery.
Karwar .	·850	+·008	—·090	E	3	4	...	
Ratnagiri .	·846	—·013	—·101	ESE	8	10	0·16	Sea smooth.
Bombay .	·849	+·004	—·131	ESE	11	10	0·12	Showery.
Surat .	·863	+·003	—·142	E	4	10	...	
Bhavnagar Para.	·870	—·029	—·177	SE	4	9	...	
Veraval .	·833	—·063	—·169	NW	8	10	0·08	Raining.

The barometer was falling over Gujarat, but was rising elsewhere. The wind was easterly to south-easterly and rain was falling along the Bombay coast.

The following gives marine data for this day:—

Name of Vessel.	8 A.M. position. Lat. N.	8 A.M. position. Long. E.	Barometer, as corrected by Bombay office.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	″			
S.S. *Bohemia* .	9 32	68 05	29·876	SSW	4	Squally.
S.S. *Pandit* .	10 04	62 35	·865	NE by N	5	Moderate north-east swell and frequent squalls and thick heavy rain.
S.S. *Chilka* .	15 55	73 24	·911	SE	2	Moderate S.W. swell and fine. Midnight light rain squalls.
S.S. *Falls of Keltic*	16 33	60 32	...	NE	4	4 P.M. fine.
S.S. *China.* .	17 08	65 45	·677	NNW	5	Cloudy. Midnight passing showers and lightning to north-east.
S.S. *Patiala* .	17 28	71 06	·730	ESE	6	Moderate sea and overcast.
S.S. *Somali* .	17 28	71 12	·767	SE	8 to 7	High sea from south-east and overcast 4 A.M. very heavy rain squalls.
S.S. *Orissa* .	18 10	72 48	·840	SSE	4	Light rain.
S.S. *City of Dundee.*	18 11	69 06	·668	ESE	3	Rainy unsettled weather. 8P.M. threatening rain squalls.
S.S. *Simla* .	20 07	71 09	·805	ESE	5	Considerable head sea. Noon, continuous heavy rain.
R.I.M.S. *Canning.*	20 32	70 31*	·854	ENE	3	Slight south-east swell and rainy.

* Noon position.

There was not much information for this day, but apparently the storm had continued to advance north-eastward and the centre lay approximately in Lat. 17° 30′ N. and Long. 68° E. The strongest winds were to the east of the storm where lay the *Somali* and the *Patiala* with south-east winds strong to a gale.

December 2th.—The following gives 8 A.M. data for the west coast ports:—

Station.	Pressure. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction at 8 A.M.	Wind. Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	Weather.
	″	″	″				inches	
Cochin .	29·897	+·022	—·010	ENE	1	3	...	Sea smooth.
Calicut .	·908	+·032	—·013	NE	7	0	...	
Mangalore .	·890	+·047	—·044	SSE	2	7	...	Sea smooth
Karwar .	·887	+·037	—·055	Calm	3	6	0·14	
Goa . .	...	...	...	ESE	...	4	0·87	Sea slight.
Ratnagiri .	·897	+·051	—·052	ESE	15	8	0·75	Do.
Bombay .	·859	+·010	—·122	SSE	19	4	0·33	Showery.
Surat .	·866	+·003	—·141	E	4	10	0·57	
Bhavnagar Para.	·852	—·018	—·197	NE	7	10	0·33	Showery.
Veraval .	·839	+·006	—·164	NE	5	9	1·01	Sea smooth.
Dwarka .	·902	+·034	...	NNE	13	0	...	Sea slight.
Bhuj .	·929	+·024	—1	NE	8	0	...	

The barometer was rising and the storm was filling up the centre was, however, still shown over the north-east angle of the Arabian Sea apparently lying in about Lat. 20° N. and Long. 71° E. Rain was falling around the coast but the winds were not strong.

The following gives marine information on this day:—

Name of Vessel.	8 A.M. position. Lat. N.	8 A.M. position. Long. E.	Barometer as corrected by Bombay office.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	″			
S.S. *Pandit* .	9 32	65 36	29·875	E by N	2	Cloudy.
S.S. *Mascotte* .	13 13	74 30	·875	E	2	Fine.
S.S. *Nowshera* .	14 16	74 02	·953	Var.	2	Smooth sea and fine.
S.S. *City of Vienna.*	16 37	63 31	·839	NNE	4	Moderate sea. 4 A.M., cloudy.
S.S. *Purulia* .	17 13	72 45	·912	Var.	2	South-west swell. 4 A.M. continuous rain.
S.S. *Falls of Keltic.*	17 21	63 39	...	NE	4	4 A.M. fine.
S.S. *China* .		Bombay*	·752	SSW	4 to 5	Squally, rainy.
H.M.S. *Fox* .	20 16	69 12*	·795	NNE	4	Cross swell and fine.
S.S. *Pachumba* .	21 07	69 59	·875	N	4	Moderate sea and fine.
R.I.M.S. *Canning*	21 42	69 07	·888	NE	3	Moderate NE. sea and fine.
S.S. *Dwarka* .	21 46	69 21*	·821	NE	5	Rough sea, 4 A.M. squally.

* Noon position.

The cyclonic circulation of the winds was confined to the north-east angle of the Arabian Sea and the force of the wind was low.

The storm apparently filled up in this position. The disturbance was at no time intense so far as can be judged but there were very few ships in the neighbourhood of the

storm on most days of its existence and hence the difficulty in estimating the intensity of the disturbance and the position of the centre. Approximately the position of the centre on each day was as follows, but very little reliability can be placed on these approximations.

From the 1st to the 3rd	in Lat. 8°	N. and	Long. 74° E.
On the 4th	„ Lat. 8°	N. „	Long. 68° E.
„ „ 5th	„ Lat. 8° 30′	N. „	Long. 65° E.
„ „ 6th	„ Lat. 9° 10′	N. „	Long. 64° 40′ E.
„ „ 7th	„ Lat. 10°	N. „	Long. 64° E.
„ „ 8th	„ Lat. 12°	N. „	Long. 64° E.
„ „ 9th	„ Lat. 14°	N. „	Long. 64° E.
„ „ 10th	„ Lat. 16°	N. „	Long. 66° E.
„ „ 11th	„ Lat. 17° 30′	N. „	Long. 68° E.
„ „ 12th	„ Lat. 20°	N. „	Long. 71° E.

Slight cyclonic storm over south-east of Bay, December 14th to 16th.

December 14th.—The following gives 8 A.M. data for the ports on the south Madras coast:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	WIND. Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inch.	
Colombo .	29·904	+·018	+·007	N	11	8	...	Sea slight.
Trincomalee	·883	—·017	—·017	NW		4	...	
Trivandrum	·900	—·008	—·008	Calm	2	10	...	Thunder.
Negapatam	·893	—·024	—·041	NW	5	10	...	
Cuddalore .	·908	—·033	—·057	Calm	2	10	...	
Madras .	·939	—·011	—·031	NNW	7	10	...	Sea slight.
Nellore .	·949	—·016	—·043	NNW	2	10	...	

The barometer was falling slowly along the Madras coast where the wind was north-westerly and the sky thickly clouded.

The following gives marine data for this day:—

NAME OF VESSEL.	8 A.M. POSITION. Lat. N.	Long. E.	Barometer as corrected by Calcutta office.	WIND Direction.	Force.	WEATHER.
	′	° ′	"			
S.S. *Hugin* .	5 21	84 15	29·795	W	3	Fine noon, rain at times.
S.S. *Kenley* .	5 51	80 27	...	WNW	2	Showery.
S.S. *Collegian* .	7 16	82 30	...	NW	3	Moderate sea and cloudy.
S.S. *Mombassa* .	7 46	81 46	·852	NNW	4	Moderate head swell and cloudy.
R.I.M.S. *Hardinge*.	10 54	88 15	·645	S	5	Slight southerly swell and fine.
S.S. *Wardha* .	11 03	83 46	·800	ESE	5	Moderate sea and overcast 4 P.M. passing rain squalls.
S.S. *Hohenfels* .	Madras.		...	NNE	4	
S.S. *City of Bombay*.	17 07	86 25	...	NE by E	4	Moderate sea and fine.
S.S. *Nadir* .	17 42	83 29	·990	Var.	2	Slight sea and fine.

The direction of the winds on board the *Hardinge*, the *Mombassa*, the *Collegian* the *Hugin* and the *Wardha* showed that a slight depression had developed over the south-east of the Bay, though the winds were light and the weather generally fine.

December 15th.—The following gives 8 A.M. data for the ports on the south Madras coast:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	WIND. Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches.	
Trincomalee .	29·856	—·027	—·046	Calm	...	2	...	
Colombo .	·898	—·006	0	NE	10	2	...	Sea slight.
Trivandrum .	·889	—·011	—·020	NE	3	10	...	
Negapatam .	·862	—·031	—·075	Calm	5	10	0·05	
Cuddalore .	·837	—·071	—·129	W	3	10	0·25	Nor'-wester.
Madras .	·856	—·083	—·115	N	11	10	2·26	Sea rough.
Nellore .	·887	—·062	—·106	NNW	5	10	4·75	Continuous rain.

The barometer was falling briskly with northerly winds and moderate to heavy rain and the slight storm was approaching the coast near Cuddalore.

December 16th.—The following gives 8 A.M. data for the south Madras coast:—

STATION.	PRESSURE. 8 A.M. reduced to sea-level and constant gravity at Lat. 45°.	Change in past 24 hours.	Variation from normal.	WIND. Direction at 8 A.M.	Average hourly velocity in miles during past 24 hours.	Cloud.	Rainfall.	WEATHER.
	"	"	"				Inches.	
Trincomalee	29·879	+·023	—·025	SW	...	3	0·03	
Trivandrum	·892	+·003	—·018	ENE	4	0	...	
Negapatam	·895	+·033	—·043	ESE	2	3	0·16	
Cuddalore .	·920	+·083	—·046	Calm	1	7	0·18	
Madras .	·931	+·075	—·042	N	5	10	0·15	Sea slight.
Nellore .	·940	+·053	—·055	NNW	4	10	7·45	Continuous rain.

The preceding data show that the barometer had risen briskly, and that the slight storm had filled up.

Summary of the reports of the Weather and Snowfall in the Mountain Districts to the North and North-West of India.

The snowfall of the month of December 1902 was, except in Chitral, generally light and confined to the higher ranges. The following gives details of the snowfall reports received :—

I.—AFGHAN MOUNTAIN DISTRICTS.

(1) *Kurram* :—Light snow fell on the Sufed Koh on the 15th, 28th, and 29th December.

The passes on the 31st had not been closed.

(2) *Wano* :—On the 14th and 15th light snow, measuring about 4 inches, fell on the higher peaks of the Marwattai and Pirghal (11,000 feet) and about 3 inches on Janimela (9,400 feet) and Kotkun (7,900 feet). On the 29th and 30th a fall of about 2 inches of snow, accompanied with showers of rain, fell on the higher peaks of Marwattai and Pirghal.

Almost all the snow had melted, by the end of the month, off the sunny slopes. Snow was lying on the 31st only on the highest points and in sheltered ravines on the south face, but was probably lying to a depth of over 1 foot on the northern face. The total snowfall during the month was much lighter than usual.

(3) *Chitral* :—There were two falls of snow during the month under review. The first fall occurred on the 15th when all the hills down to 3,000 feet were covered with snow and the snowfall was from 12 to 18 inches in depth. The second fall was on the 28th, 29th and 30th December when the snowline descended to 5,?00 feet. The accumulation of snow on the higher peaks at the end of the month, was from 4 to 5 feet and the snowfall of the month was much greater than that of last year.

II.—KASHMIR AND PUNJAB HIMALAYAS.

(1) *Kashmir* :—On the 18th December fresh snow fell during the night on the higher ranges visible from Srinagar.

(2) *Simla* :—At Kilba no snow fell during the month. The accumulation of snow on the principal passes was as follows :—

Rupin Pass	(16,000 feet)	5 feet
Bronni „	„	5 „
Shatul „	(15,000 „)	4 „
Balder „	(16,000 „)	5 „
Runang „	(14,000 „)	2½ „

All the passes except Shatul were open during the month.

The snowfall of the winter up to date (31st December) has been much less than the average.

III.—UNITED PROVINCES HIMALAYAS.

(1) *Almora*.—Snow fell as under:—

MALLA JOHAR.

21st December:—About 1 foot of snow fell on the peak of Utadhura.

MALLA DANPUR.

21st December :—About 1 foot of snow fell on the peaks of Pindari, Kaphini and Kartela.

On the Malla Johar the snowfall was less, and on the Malla Danpur greater than in December 1901.

(2) *Garhwal*.—Snow fell on the 21st of December, the snowline descending to about 12,000 feet.

Summary of Special Storm Reports.

The following accounts of local storms which occurred during the month have been received. The storms were few in number and generally unimportant.

December 3rd.—At Ootacamund soon after sunset the wind began to rise from east-north-east and east-south-east and from 8 P.M. to 3 A.M. blew at a rate between 20 and 30 miles per hour. During the storm 1·09 inches of rain fell.

December 6th and 7th.—A thunderstorm commenced at Ootacamund at about 10 P.M. and lasted till 8 A.M. The rainfall measured 1·31 inches.

At Belgaum there was a short local storm at 3-30 P.M. on the 6th. The wind blew at the rate of 40 miles per hour and there was 0·24 inch of rain.

December 11th.—A storm passed over Khandwa from south to north at 4 A.M.

December 14th.—A thunderstorm occurred at Ootacamund at 10 P.M. giving 0·10 inch of rain.

December 15th.—A slight squall passed over Srinagar between 2 and 3 P.M. when the wind velocity was at the rate of 38 miles per hour.

December 18th.—A duststorm passed over Srinagar between 4 P.M. and 9 P.M. There was no rain.

The following reports regarding earthquakes have been collected :—

On the 13th December a shock was felt at Moorshidabad at 11-15 P.M.

On the 17th (?) the town of Andijan in Ferghana (Russian Central Asia) was destroyed by an earthquake. The loss of life is unknown. A long stretch of railway was destroyed. The shocks continued with increasing severity over an area of about 200 square miles until the 15th (?) of January and it was ascertained that 7,000 persons perished.

On the 23rd a violent shock of earthquake was felt at Lahore at 1-24 A.M.

Brief summary of the weather in the Arabian Sea and Bay of Bengal during the month.

Arabian Sea.—Very unsteady winds have prevailed over the east of the Arabian Sea during the greater part of the month. A slight storm commenced to form over the south-east of the Arabian Sea on the 1st and lay over that region until the 3rd. It passed along a curved track northward over the east of the sea between the 4th and the 12th when it reached the Kathiawar coast. During this period the wind was southerly and south-easterly off the west coast and was strong from the northward over the centre of the sea, the mean daily force for the whole sea ranging from 4·4 on the 8th to 3·2 on the 12th. After the storm had reached the coast the force of the wind fell quickly and averaged for the whole sea 2·4 on the 13th, 2·7 on the 14th, and 2·5 on the 15th. On the latter date the wind settled into north and north-east over the greater part of the sea except the south-east and with this direction blew steadily until the 28th. On the latter date unsettled conditions appeared over the south of the sea between Lats. 8° and 12° N. and Longs. 64° and 72° E. On the 29th abnormal easterly winds appeared with squally rainy weather all over the south-east of the sea, and apparently a depression was formed in an unusually southerly position. Easterly winds continued on the 30th over the south-east of the sea, but on the 31st the wind shifted to the northward and blew with that direction over the greater part of the Arabian Sea.

The mean air movement of the whole sea for the whole month was 3·6 as compared with 3·3 the normal average force. It ranged from 4·4 on the 8th and 4·3 on the 7th, 9th and 26th, to 2·4 on the 13th and was above the normal on twenty-three days during the month.

Bay of Bengal.—Unusually steady winds from northerly and north-easterly directions prevailed during the greater part of the month over the northern half of the Bay, but on the 21st and 22nd south-easterly winds were reported off the Bengal and Orissa coasts. In the southern half of the Bay the winds were frequently easterly. This was particularly the case on the 2nd and 3rd, the 7th, the 14th and 15th, the 17th and the 19th and 20th when the weather was slightly disturbed. At other times winds from northerly directions obtained more or less generally over the whole surface of the Bay. Apparently there was no incursion or extension of south-west monsoon winds into the Bay throughout the month and no storms of any importance were developed. The wind force was somewhat unsteady during the month. The wind was weaker than usual from the 9th to the 12th, and from the 15th to the 21st and was about normal or slightly stronger than usual at other times. The force fluctuated between an average of 3·9 on the 29th and 2·0 on the 20th, and the mean force of the whole month was 3·0 compared with an average of 3·2.

Equatorial belt.—For this area there was, as usual, comparatively little information. North-east and north-west winds prevailed over the west of the belt from the 1st to the 10th. On the 11th the winds became variable and so continued during the next three days. On the 15th northerly winds reappeared, drawing into north-west and west between the 17th and 24th. On the 25th northerly winds again spread over the belt and held till the close of the month.

Temperature of the air.

There was practically no rain during the month of December over northern India, while there was general rainy and cloudy weather over the Peninsula and lower Burma. These rainfall conditions impressed their mark on the temperature which was generally below the normal at the more northern and above the normal at the more southern stations.

The mean maximum temperature of the month was above the normal over the Indus valley, Tenasserim and lower Burma, and was generally, though not universally, below elsewhere. In both the areas of excess the variations from the normal were generally small and only exceeded 2°·0 at the two following stations:—

Station.	Mean maximum temperature.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°	°
Moulmein	90·1	87·2	+2·9
Kurrachee	82·6	80·3	+2·3

Over the remainder of India, with a few exceptions, the mean maximum or day temperature was below the average. The deficiency was moderate and more than 2·0 in four areas. The first included part of the Bombay coast, the Bombay Deccan, Berar, part of central India and a considerable part of the Central Provinces; the second included Kathiawar; the third the south Punjab and the Ajmer district of Rajputana, and the fourth the Bhamo district of Burma. The following gives comparative data for the stations in these areas:—

Area.	Station.	Minimum temperature. Actual, December 1902.	Normal, December	Variation of actual from normal, December 1902.
		°	°	°
Bombay Coast.	Goa	83·7	87·4	—3·7
	Ratnagiri	86·5	89·5	—3·0
Bombay Deccan	Malegaon	80·5	84·2	—3·7
	Ahmednagar	79·5	83·0	—3·5
	Sholapur	82·2	85·5	—3·3
	Belgaum	78·9	81·6	—2·7
	Poona	81·8	84·3	—2.5
	Bijapur	81·6	84·0	—2·4
Berar	Akola	80·9	83·6	—2·7
	Amraoti	80·0	82·7	—2·7
Central Provinces.	Khandwa	80·6	83·0	—2·4
	Hoshangabad	76·9	79·3	—2·4
	Nagpur	79·0	81·3	—2·3
	Seoni	75·5	77·7	—2·2
	Saugor	74·5	76.7	—2·2
Central India	Indore	76·1	79·3	—3·2
Kathiawar	Rajkot	82·6	85·4	—2·8
	Bhavnagar Para	83·0	85·0	—2·0
South Punjab	Sirsa	72·7	74·9	—2·2
Rajputana	Ajmer	74·3	76·3	—2·0
Burma	Bhamo	73·7	76·3	—2·6

Except within these four areas the variations of the mean maximum temperature from the normal were generally small. As mentioned above there existed a fairly large area of deficiency over the west of the Peninsula and the Central Provinces and smaller areas of excess over Tenasserim and lower Burma on the one hand and the Indus valley on the other, but in all other parts of the Indian area the variations were principally noticeable for their irregularity.

The following were the highest maximum temperatures recorded in each division in December 1902, together with the highest maxima previously registered at the recording stations:—

Province or Division.	Station.	Highest maximum temperature recorded in December 1902.	Date on which recorded.	Highest maximum temperature recorded in December previous to 1902.	Year in which recorded.
		°		°	
Burma	Tavoy	93·2	13th Dec.	93·2	1894 and 1896
Assam	Silchar	85·4	1st ,,	87·0	1887
Bengal	Midnapore	87·8	19th ,,	90·3	1896
Orissa	Cuttack	89·9	,, ,,	90·7	1896
Bihar	Dehri	82·7	,, ,,	87·0	1895
Chota-Nagpur	Chaibassa	85·7	,, ,,	88·2	1890
United Provinces.	Jhansi	85·2	17th and 18th ,,	98·0	1871
N.-W. F. Province and Punjab.	D. I. Khan	82·3	3rd ,,	84·8	1901
Sind	Kurrachee	88·4	2nd ,,	90·4	1899
Rajputana	Deesa	90·1	8th ,,	95·6	1899
Gujarat	Surat	91·1	7th ,,	97·7	1901
Central India	Neemuch	85·0	18th ,,	88·0	1899
Central Provinces.	Chanda	91·7	20th ,,	93·5	1877
Berar	Akola	90·0	17th and 19th. ,,	97·8	1896
West Coast	Ratnagiri	92·4	3rd	100·3	1901
Bombay Deccan.	Malegaon	87·9	19th ,,	98·4	1899
Mysore	Mysore	86·1	21st and 25th. ,,	87·1	1900
Madras Coast.	Nellore	88·8	20th and 21st ,,	88·7	1897
Madras Deccan	Kurnool	92·7	21st ,,	93·2	1893
South India	Tinnevelly	89·2	17th ,, 23rd, 24th and 25th.	97·3	1892

The above shows that in all provinces except Burma and the Madras coast higher maxima have been recorded in previous years than in the month under review.

The variations of the mean minimum temperatures of the month from the normal were as regular in their distribution as the variations of the mean maximum temperatures were irregular. All over the Peninsula and the central parts of India as well as over Tenasserim the cloud and humidity, on the mean of the month, were in excess, and as a consequence the mean minimum or night temperature was in excess, while all over northern India the cloud amount and the humidity were in defect and the mean night temperature below the normal. The excess was large and more than 4° in amount over the inland parts of the

Peninsula and over Tenasserim. The following gives comparative data for the stations within these two areas:—

Province or Division.	Station.	Mean minimum temperature. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
		°	°	°
Peninsula	Bijapur	62·6	56·0	+6·6
	Hassan	61·1	55·5	+5·6
	Sholapur	62·9	57·5	+5·4
	Gulbarga	63·0	57·7	+5·3
	Malegaon	56·5	51·3	+5·2
	Kurnool	64·0	58·9	+5·1
	Goa	74·3	69·3	+5·0
	Hyderabad (D.)	62·3	57·3	+5·0
	Bellary	65·6	60·6	+5·0
	Karwar	71·1	66·2	+4·9
	Poona	58·5	53·8	+4·7
	Secunderabad	62·0	57·3	+4·7
	Waltair	69·3	64·7	+4·6
	Mysore	64·4	59·8	+4·6
	Akola	55·9	51·4	+4·5
	Ahmednagar	55·9	51·5	+4·4
Tenasserim	Mergui	73·0	66·7	+6·3
	Tavoy	69·4	64·8	+4·6

The greatest deficiency in the mean minimum temperature was recorded along the foot of the Himlayas and over Assam and Arakan. The following gives comparative data for those stations at which the defect was 2°·5 or more:—

Station.	Mean minimum temperature. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°	°
Roorkee	38·4	43·5	—5·1?
Akyab	60·4	64·0	—3·6
Bikaner	48·1	51·3	—3·2
Montgomery	39·9	43·0	—3·1
Dhubri	52·0	55·1	—3·1
Mainpuri	44·3	47·3	—3·0
Cawnpore	44·6	47·6	—3·0
Gorakhpur	47·4	50·4	—3·0
Dehra Dun	42·8	45·6	—2·8
Khushab	39·2	41·9	—2·7
Purnea	47·1	49·7	—2·6
Silchar	52·4	55·0	—2·6
Chittagong	55·4	58·0	—2·6
Allahabad	45·3	47·8	—2·5

The mean minimum temperatures of the month were generally below the normal at the stations in the north-west Himalayas and above the normal at the stations in Baluchistan, in the central Himalayas and the central and southern hill stations. The variations were generally small and unimportant at the stations in Baluchistan and the central and eastern Himalayas but at Srinagar (—4°·9), Leh (—4°·1) and Kabul (—3°·0), the deficiency was considerable while at Pachmarhi (+2°·5) and Wellington (+3°·2) the excess was considerable. During the last ten days of the month a cold period prevailed over the hills and plains of northern India, as well as over Baluchistan, Afghanistan and the countries to the westward and during this cold period the following low minima were recorded over this area:—

Station.	Minimum temperature of 22nd Dec.	23rd Dec.	24th Dec.	25th Dec.	26th Dec.	27th Dec.	28th Dec.	29th Dec.	30th Dec.	31st Dec.
	°	°	°	°	°	°	°	°	°	°
Baghdad	44·8	45·5	47·8	45·8	45·5	37·0	38·5	36·9	...	...
Bushire	56·2	56·7	58·2	60·7	58·7	59·2	51·3	46·8	50·3	46·3
Jask	64·2	63·2	65·2	65·2	62·2	63·2	65·2	67·2	65·2	58·3
Teheran	34·0	37·7	39·8	40·0	38·0	40·4	31·5	32·1	27·0	27·0
Ispahan	20·6	22·2	19·1	28·1	28·6	28·1	22·5	23·3	19·3	17·1
Kabul	21·4	21·8	19·4	20·4	21·4	23·4	25·4	30·8	26·4	24·4
Quetta	21·8	23·3	24·8	22·8	28·3	29·3	32·8	39·8	45·4	27·8
Chaman	34·6	33·6	34·6	35·1	39·1	42·1	47·1	49·1	46·6	31·6
Killa Drosh	34·8	34·2	34·2	33·4	33·8	35·8	35·8	35·8	35·8	35·2
Para Chinar	27·4	27·8	27·6	29·1	32·0	31·8	35·4	36·4	35·2	32·3
Chitral	35·0	33·0	31·5	33·0	33·0	31·5	31·5	34·5	33·5	36·0
Cherat	43·0	36·0	36·0	36·0	37·1	42·0	38·0	43·0	43·0	45·0
Gilgit	25·3	25·9	24·2	22·3	21·9	21·9	22·9	32·3	32·5	35·1
Skardu	13·0	11·6	10·1	10·1	9·1	7·1	8·1	20·1	22·6	25·1
Dras	—17·4	—17·4	—17·9	—18·9	—20·6	—18·4	—17·6	3·1	14·1	15·6
Sonemarg	2·6	5·6	8·6	10·1	4·1	5·1	7·6	9·6	12·6	10·6
Srinagar	17·6	16·8	17·1	11·1	17·2	16·1	23·1	25·2	23·6	22·1
Leh	1·5	0·5	0·5	0·5	1·0	0·5	8·5	10·5	13·0	22·0
Murree	35·5	34·0	33·5	33·0	33·0	37·0	38·0	39·5	37·5	37·0

The variations of the mean temperature of the month were mainly determined by the variations of night temperature as these were more regular and larger than those of the maximum temperature. Consequently the mean temperature was generally below the normal over northern India and the greater part of Burma. The deficiency was generally small and only amounted to 2°·0 or more at the following stations:—

Station.	Mean daily temperature. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°	°
Ludhiana	55·4	57·5	—2·1
Gorakhpur	60·4	62·4	—2·0

Over the Peninsula, the greater part of north Bombay, Tenasserim and the Burma coast, on the contrary, the mean temperature of the month exceeded the average. The excess was 2°·0 or more in lower Sind and at several of the Deccan stations as well as at those in Tenasserim. The following gives comparative data for the stations in these areas:—

Province or Division.	Station.	Mean daily temperature. Actual, December 1902.	Normal, December	Variation of actual from normal, December 1902.
		°	°	°
Deccan	Bellary	76·0	73·0	+3·0
	Mysore	73·3	70·7	+2·6
	Kurnool	75·4	72·9	+2·5
	Secunderadad	72·2	69·9	+2·3
	Gulbarga	73·6	71·4	+2·2
	Bijapur	72·1	70·0	+2·1
	Bangalore	70·4	68·3	+2·1
	Hassan	69·5	67·5	+2·0
	Hyderabad (Deccan)	71·9	69·9	+2·0
Lower Sind	Kurrachee	70·3	68·1	+2·2
Tenasserim	Mergui	80·5	77·0	+3·5
	Tavoy	79·4	76·3	+3·1
	Moulmein	80·1	77·1	+3·0

At the hill stations in the north-west Himalayas the mean temperature of the month was in slight to moderate defect while at the central and eastern Himalayan stations as well as at the hill stations in the centre and south of India the mean temperature was in slight to moderate excess.

The following gives a brief summary of the most important features of the temperature conditions of the month:—

(1) The day or maximum temperature was below, the night or minimum temperature above, and the mean temperature consequently about, the normal over the west of the Peninsula and the Central Provinces.

(2) The maximum temperature was about normal, the minimum temperature in considerable excess and the mean temperature in slight to moderate excess over the remainder of the Peninsula.

(3) The maximum, minimum and hence the mean temperature was in excess over lower Sind.

(4) The maximum temperature was about normal and the minimum temperature below the normal over the greater part of northern India.

(5) The maximum and the minimum and consequently the mean temperature was below the normal over parts of Bengal, Assam and Burma.

(6) The maximum temperature was in slight excess, the minimum temperature in considerable excess and consequently the mean temperature was in moderate excess in Tenasserim.

(7) The maximum temperature was about normal and the minimum temperature below the normal at the north-west Himalayan stations.

The following table gives temperature data of the month for 57 meteorological divisions of India:—

Province.	Division.	Actual temperature. Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Variation from normal of month of Maximum.	Minimum	Daily range.
		°	°	°	°	°	°	°	°
Burma	Tenasserim	89·1	70·8	80·0	18·3	26·3	+1·7	+4·7	−3·0
	Lower Burma (Deltaic)	85·5	69·3	77·4	16·1	26·0	+0·3	+1·1	−0·8
	Central do.	84·0	57·7	70·9	26·3	40·7	+0·8	−2·2	+3·0
	Upper do.	81·2	56·9	69·0	24·3	35·3	−2·6	−0·8	−1·8
	Arakan	81·8	60·4	71·1	21·4	34·8	+0·1	−3·6	+3·7
Bengal and Assam	Eastern Bengal	77·0	54·4	65·7	22·6	34·0	−0·5	−1·3	+0·8
	Assam (Surma)	79·0	52·4	65·7	26·6	36·4	−0·7	−2·6	+1·9
	Do. Hills	62·2	44·0	53·1	18·3	31·5	...	...	...
	Do. (Brahmaputra)	72·7	50·2	61·5	22·5	32·5	−0·5	−2·8	+2·3
	Deltaic Bengal	77·1	55·2	66·3	22·2	35·7	+0·2	−0·3	+0·5
	Central do.	76·7	53·5	65·1	23·3	35·5	+0·3	−0·7	+1·0
	North do.	74·9	50·5	62·7	24·4	35·4	−1·2	−2·3	+1·1
	Bengal Hills	50·4	36·2	43·3	14·2	28·8	+1·7	−0·4	+2·1
	Orissa	79·2	58·7	69·0	20·4	36·2	−0·8	+0·5	−1·3
	Chota Nagpur	74·9	51·0	63·0	24·0	39·7	−1·1	+0·9	−2·0
	South Bihar	75·3	50·5	62·9	24·9	37·3	0	−1·0	+1·0
	North do.	74·1	48·7	61·4	25·5	37·6	−1·2	−2·4	+1·2

Province.	Division.	Actual temperature.					Variation from normal of month of		
		Mean maximum.	Mean minimum.	Mean of day.	Mean daily range.	Absolute range.	Maximum.	Minimum.	Daily range.
		°	°	°	°	°	°	°	°
United Provinces of Agra and Oudh.	United Provinces (East)	75·3	45·6	60·5	29·7	45·7	—0·1	—2·4	+2·3
	Oudh (South)	76·3	44·8	60·6	31·5	48·2	+0·6	—1·4	+2·0
	Do. (North)	74·9	45·6	60·3	29·3	40·5	—0·1	—2·4	+2·3
	United Provinces (Central)	76·0	47·2	61·6	28·8	45·5	—0·6	—1·7	+1·1
	Do. do. (West)	73·9	45·4	59·7	28·6	44·5	—0·6	—1·4	+0·8
	Do. do. (East Submontane).	73·3	47·4	60·4	25·9	36·3	—0·9	—3·0	+2·1
	Do. do. (West Submontane)	71·4	41·7	56·6	29·7	41·7	+0·3	—2·5	+2·8
	Do. do (Hills)	55·2	40·3	47·8	14·9	31·1	+0·5	+0·2	+0·3
Punjab and North-West Frontier Province.	Punjab (South-East)	71·9	47·9	59·9	24·0	37·0	—1·8	—1·0	—0·8
	Do. (South)	71·9	41·0	56·5	30·9	44·3	—2·2	—1·5	—0·7
	Do. (Central)	72·7	39·3	56·0	33·4	47·8	—0·5	—1·0	+0·5
	Do. (Submontane)	69·3	41·2	55·3	28·2	42·1	—1·3	—2·1	+0·8
	Do. (Hills)	45·0	24·5	34·8	20·6	38·8	+0·7	—2·2	+2·9
	Do. (North)	68·4	35·7	52·1	32·7	49·1	+0·8	—2·4	+3·2
	Do. (West)	73·2	40·2	56·7	32·9	48·0	+0·4	—2·1	+2·5
Bombay and Malabar Coast Districts (Madras).	Malabar	87·1	74·0	80·6	13·2	23·3	—0·1	+2·7	—2·8
	Madras (South Central)	84·7	68·8	76·8	16·0	29·8	—1·1	+3·1	—4·2
	Coorg	75·1	59·8	67·5	15·3	27·9	—0·1	+2·0	—2·1
	Mysore	79·9	63·0	71·5	16·9	32·3	—0·2	+4·3	—4·5
	Konkan	85·0	72·4	78·8	12·6	25·3	—2·1	+3·9	—6·0
	Bombay Deccan	81·1	61·4	71·3	19·7	39·1	—2·7	+5·1	—7·8
	Hyderabad (North)	79·2	58·3	68·8	20·8	40·4	...	...	...
	Khandesh	80·0	56·2	68·1	23·8	45·0	—3·6	+4·8	—8·4
Central Provinces and Berar.	Berar	80·5	57·8	69·2	22·7	45·9	—2·7	+3·7	—6·4
	Central Provinces (West)	78·8	54·7	66·8	24·2	48·8	—2·4	+2·6	—5·0
	Do. do. (Central)	76·9	52·1	64·5	24·8	48·2	—1·6	+2·2	—3·8
	Do. do. (East)	79·4	53·0	66·2	26·4	50·5	+0·2	—1·1	+1·3
Bombay (North)	Gujarat	85·2	60·8	73·0	24·4	38·8	—1·5	+1·9	—3·4
	Kathiawar and Cutch	82·3	58·2	70·3	24·1	40·3	—1·1	+0·8	—1·9
	Sind	80·2	51·4	65·9	28·8	43·9	+1·5	+0·7	+0·8
	Baluchistan Hills	58·1	31·8	45·0	26·3	43·8	+0·7	+1·0	—0·3
Rajputana and Central India.	Central India (East)	75·2	48·4	61·8	26·8	46·7	—1·9	+0·3	—2·2
	Rajputana (East), Central India (West)	77·6	48·5	63·1	29·1	46·0	—0·5	+0·5	—1·0
	Do. (West)	78·5	49·3	63·9	29·2	45·4	—0·5	—1·7	+1·2
Madras	East Coast (North)	80·1	66·5	73·3	13·7	29·9	—1·0	+2·7	—3·7
	Hyderabad (South)	83·0	63·5	73·3	19·5	41·8	—0·6	+4·6	—5·2
	Madras (Central)	86·7	66·0	76·4	20·7	41·8	+0·3	+4·4	—4·1
	East Coast (Central)	83·2	69·9	76·6	13·3	27·8	—0·7	+2·5	—3·2
	Do. (South)	82·7	72·4	77·6	10·3	23·1	—0·6	+2·4	—3·0
	Madras (South)	84·6	72·5	78·3	12·2	22·8	—0·8	+1·1	—1·9

The above shows that the hottest areas, defined by the isotherm of 80° were Tenasserim and Malabar or the extreme southern divisions of the Indian area. The coolest region defined by the isotherm of 60° included the west of the United Provinces and the whole of the Punjab and the North-West Frontier Province. The mean daily range was greatest and as much as 33°·4 in the central Punjab, while it was least amounting to only 10°·3 on the east coast (south) division. The average maximum temperature of the month was as high as 90°·1 at Moulmein and 89°·8 at Cochin while the average minimum temperature of the month was below 40° over the Punjab plains.

The following is a statement of the larger and more important charges of the temperature conditions during the month:—

From the 1st to the 4th the mean temperature was more or less below the normal over upper Burma, north-east India and the whole of the central parts of the country while it was above the average over Tenasserim, the west and south of the Peninsula and the extreme north-west. The variations from the normal were not, however, large at this time except in Baluchistan where both the day and night temperatures, but particularly the latter, were much above the normal. The following gives comparative data for all divisions for the 3rd and illustrates

the distribution of temperature, relatively to the normal, at this time :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF		
	Mean maximum temperature, 3rd December.	Mean minimum temperature, 3rd December.	Mean daily temperature, 3rd December.
	°	°	°
Burma	+1·4	—0·7	+0·4
Assam	0	—6·1	—3·1
Bengal	+0·6	—2·7	—1·1
Orissa	—0·3	—3·4	—1·9
Bihar	+0·9	—1·7	—0·4
Chota Nagpur	+0·3	—0·8	—0·3
United Provinces of Agra and Oudh.	+0·4	—2·1	—0·9
N.-W. F. Province and Punjab	+3·0	+1·6	+2·3
Sind	+2·7	+3·2	+3·0
Baluchistan	+4·8	+11·4	+8·1
Rajputana	—1·1	—0·6	—0·9
Gujarat	+0·8	0	+0·4
Central India	—1·3	—1·6	—1·5
Central Provinces	—0·5	—3·8	—2·2
Berar	—1·2	—1·2	—1·2
West Coast	+0·1	+3·3	+1·7
Bombay Deccan	—2·1	—1·6	—1·9
Mysore	+0·5	+4·2	+2·4
Madras Coast	—1·2	+2·3	+0·6
Madras Deccan	—1·9	—0·3	—1·1
South India	—4·0	+2·7	—0·7

On the 5th the temperature rose over a large part of the country, but the rise did not extend over north-east India or to upper and central Burma, and the mean temperature was steadily low over that region from the 5th to the 7th. This is shown below :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	5th December.	6th December.	7th December
	°	°	°
Burma	—1·2	—1·1	—0·3
Assam	—4·0	—3·7	—3·4
Bengal	—1·8	—2·5	—1·9
Orissa	—3·1	—2·1	—0·5
Bihar	—1·5	—1·7	+0·3
Chota Nagpur	—1·1	—0·9	+0·9

On the 4th a very slight depression had appeared over north-west India and given light showers to Baluchistan and probably to parts of the north-west Himalayas as a fall of temperature occurred at this time in the extreme north-west. The following gives data for Baluchistan and the North-West Frontier Province and the Punjab from the 5th to the 7th :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF		
	5th December.	6th December.	7th December.
	°	°	°
Baluchistan	—3·1	—2·5	—3·6
N.-W. F. Province and Punjab	+0·2	+0·4	—0·6

The hottest area at this period was the interior of the Peninsula and the central parts of India, as is shown by the following table which gives comparative data for those stations where between the 5th and the 7th the mean temperature was more than 5° above the normal :—

DATE.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
5TH DECEMBER	Hyderabad (s)	+5·8
6TH "	Bijapur	+6·2
	Kurnool	+6·1
	Hyderabad Deccan	+5·3
	Ratnagiri	+5·3
7TH "	Khandwa	+8·0
	Surat	+6·6
	Malegaon	+5·9
	Deesa	+5·2
	Indore	+5·1
	Sutna	+5·1
	Bellary	+5·1

Between the 5th and the 7th a barometric depression over the Arabian Sea caused a fall of rain along the west coast and in Khandesh and Berar. As a result very low day and very high night temperatures were experienced over the Bombay Deccan and the west Satpuras on the

8th and 9th. The following gives data for the stations in these areas on these two days :—

Date.	Station.	Variation from normal of: Maximum temperature of date.	Minimum temperature of date.	Mean temperature of date.
		°	°	°
8th December.	Belgaum	— 6·3	+ 7·4	+0·6
	Sholapur	— 8·8	+ 7·6	—0·6
	Poona	— 8·4	+ 7·2	—0·6
	Bijapur	— 8·6	+11·3	+1·4
	Ahmednagar	—17·5	+ 7·4	—5·1
	Malegaon	—17·2	+11·1	—3·1
	Akola	—14·7	+ 8·8	—3·0
	Amraoti	—18·2	+ 3·4	—7·4
	Khandwa	— 9·4	+14·1	+2·4
	Nagpur	—13·7	+ 5·1	—4·3
9th "	Belgaum	— 3·3	+ 7·5	+2·1
	Sholapur	— 7·3	+ 7·7	+0·2
	Poona	— 8·3	+ 9·8	+0·8
	Bijapur	— 7·5	+10·9	+1·7
	Ahmednagar	—16·5	+ 8·0	—4·3
	Malegaon	—19·1	+10·8	—4·2
	Akola	—16·7	+12·0	—2·4
	Amraoti	—17·1	+ 3·5	—6·8
	Khandwa	—14·2	+14·8	+0·3
	Nagpur	—12·6	+ 9·1	—1·8

On the 8th the variations of the mean temperature from the normal were very irregularly distributed. Temperature was lower than usual over northern and north-eastern India and upper and central Burma; higher than usual within a broad band which extended from Sind eastward to south-west Bengal; low within a narrow band stretching across the head of the Peninsula and high over the southern half of the Peninsula and Tenasserim. The following gives comparative data for all divisions for this day :—

Province or Division.	Variation from normal of: Mean maximum temperature, 8th December.	Mean minimum temperature, 8th December.	Mean daily temperature, 8th December.
	°	°	°
Burma	+ 0·3	—1·1	—0·4
Assam	— 2·3	— 2·3	—2·3
Bengal	— 2·8	+1·3	—0·8
Orissa	— 1·0	+0·6	—0·2
Bihar	— 1·9	+3·0	+0·6
Chota Nagpur	— 4·2	+6·7	+1.3
United Provinces of Agra and Oudh.	— 1·8	+0·3	—0·8
N-W. F. Province and Punjab	— 0·6	—1·4	—1·0
Sind	+ 1·3	+3·5	+2·4
Rajputana	+ 1·1	+1·7	+1·4
Gujarat	+ 0·3	+7·2	+3·8
Central India	— 2·9	+6·4	+1·8
Central Provinces	— 5·1	+7·0	+1·0
Berar	—16·5	+6·1	—5·2
West Coast	— 1·3	+4·6	+1·7
Bombay Deccan	— 9·5	+8·7	—0·4
Mysore	0	+6·1	+3·1
Madras Coast	— 0·8	+3·2	+1·2
Madras Deccan	+ 0·6	+7·2	+3·9
South India	— 3·4	+3·6	+0·1

The low temperatures over northern India held steadily from the 10th to the 14th but the depression of temperature resulting from the showers in Khandesh rapidly disappeared and between the dates quoted above the mean temparature steadily exceeded the normal in all parts of the country except northern India and the centre of the west coast. The following gives data for all divisions from the 10th to the 14th.

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of: 10th Dec.	11th Dec.	12th Dec.	13th Dec.	14th Dec.
	°	°	°	°	°
Burma	+0·2	+1·1	+1·4	+1·8	+2·5
Assam	—1·8	—2·0	—4·0	—2·0	—2·3
Bengal	—0·9	—1·0	—1·7	—0·6	—1·3
Orissa	+1·5	+1·7	—0·7	—0·6	+1·2
Bihar	—0·2	—2·3	—0·6	—4·1	—1·8
Chota Nagpur	+0 6	—1·4	—1·2	+0·7	+1·2
United Provinces of Agra and Oudh.	—2·8	—3·5	—1·4	—3·9	—0·3
North-West Frontier Province and Punjab.	—1·5	—1·6	—1·8	—1·5	—1·8
Sind	+0·9	+1·3	+1·0	+2·2	+2·2
Rajputana	—2·2	—1·2	+ 1·2	+2·7	+5·4
Gujarat	+0·2	+4·5	+2·7	+2·6	+2·3
Central India	+0·3	—1·4	+2·8	—0·7	+1·0
Central Provinces	+2·3	—1·1	+2·3	+1·8	+4·3
Berar	—2·2	—2·2	+3·1	+2·5	+4·1
West Coast	+2·2	+1·4	+0·8	+0·3	+1·2
Bombay Deccan	+2·3	+1·3	+2·1	+4·5	+5·2
Mysore	+3.5	+4·9	+4·2	+4·0	+3·0
Madras Coast	+1·7	+2·4	+2·	+1·7	+2·3
Madras Deccan	+4·5	+4·1	+4·4	+4·5	+4·8
South India	+1·6	+0·8	+0·8	+0·6	—0·3

During this period a very shallow depression had appeared over the Gulf of Cambay and had occasioned cloudy and slightly showery weather over western and central India. As a result the night temperatures were excessively high all over those areas, as is shown by the following data which give the variations of the minimum temperature exceeding 10° on the nights of the 13th and 14th :—

Date.	Station.	Variation of actual from normal of minimum temperature of date.
		°
13TH DECEMBER 1902	Deesa	+19·2
	Malegaon	+15·9
	Rajkot	+14·7
	Chanda	+14·0
	Surat	+12·7
	Akola	+12·7
	Jubbulpore	+12·5
	Khandwa	+12·2
	Sholapur	+12·0
	Bijapur	+11·8
	Ahmednagar	+11·8
	Bhavnagar Para	+11·3
	Bhuj	+10·1
	Indore	+10·1
14TH " "	Malegaon	+16·0
	Sambhar	+15·9
	Deesa	+13·8
	Akola	+13·3
	Khandwa	+13·3
	Jaipur	+13·1
	Bijapur	+12·9
	Sholapur	+12·6
	Chanda	+12·1
	Poona	+11·8
	Ajmer	+11·6
	Ahmednagar	+10·9
	Hoshangabad	+10·8
	Seoni	+10·5
	Nagpur	+10·1

On the 15th a slight storm giving, however, heavy rain was approaching the south Madras coast and temperature fell fast in that region. The following gives comparative data for the Madras districts from the 14th to the 16th :—

Province or Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of		
	14th December.	15th December.	16th December.
	°	°	°
Madras Coast	+2·3	−0·6	+1·1
South India	−0·3	−0·7	−0·3

On the 15th snow fell on the Kashmir hills and the mean temparature was low over the north and west Punjab on the 15th and 16th, as is shown below :—

Date.	Station.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of date.
		°
15th December	Ludhiana	−3·0
	Lahore	−1·9
	Montgomery	−1·1
	Sialkot	−1·0
16th "	Rawalpindi	−5·4
	Peshawar	−1·8
	Mooltan	−0·7
	Khushab	−0·6
	Sialkot	−0·5

The depression of temperature over the Punjab occasioned by the snow in Kashmir as well as that over Madras occasioned by the cyclonic rainfall disappeared by the 17th and on that and the following day the mean temperature was above the normal in all parts of India except Assam and Burma. The following gives comparative data for all divisions for these two days :—

Province of Division.	Variation from normal of mean temperature of 24 hours preceding 8 A.M. of	
	17th December	18th December.
	°	°
Burma	+1·0	−0·8
Assam	−0·7	−0·6
Bengal	+1·0	+2·2
Orissa	+5·2	+7·6
Bihar	+1·3	+2·9
Chota Nagpur	+5·6	+8·1
United Provinces of Agra and Oudh	+5·3	+5·5
N.-W. F. Province and Punjab	+1·0	+1·6
Sind	+0·9	+1·6

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF	
	17th December.	18th December.
	°	°
Rajputana	+6·4	+4·4
Gujarat	+3·1	+2·6
Central India	+8·8	+9·4
Central Provinces	+9·4	+10·4
Berar	+10·0	+9·2
West Coast	+1·7	+1·5
Bombay Deccan	+5·8	+5·5
Mysore	+2·3	+4·1
Madras Coast	+2·8	+4·3
Madras Deccan	+2·0	+4·5
South India	+1·6	+2·3

It will be observed that the greatest excess was reported from the central and Deccan divisions. Over these divisions the sky remained cloudy and the night temperatures were in extraordinarily large excess. The following gives data for those stations at which, on the 17th and 18th, the minimum temperatures were more than 15° above the normal :—

DATE.	Station.	Variation of actual from normal of minimum temperature of date.
17th December	Chanda	+17·5
	Malegaon	+17·3
	Nowgong	+15·2
	Ahmednagar	+15·1
	Akola	+15·1
18th „	Chanda	+20·1
	Akola	+18·2
	Khandwa	+16·9
	Sutna	+16·2
	Mag n	+15·4
	Indore	+15·3

On the 19th the temperature commenced to fall over Gujarat and the Rajputana desert as well as over the Himalayas and the submontane districts of northern India and Burma. Over these three areas lower temperatures than the normal were shown on the 20th and from these three centres lower temperatures extended in all directions, and by the 29th had reached all parts of the Indian area except the Brahmaputra valley and Tenasserim. The following gives data for all divisions for each alternate day from the 19th to the 31st and illustrates the extension of this cold "snap" over the country :—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF						
	19th Dec.	21st Dec.	23rd Dec.	25th Dec.	27th Dec	29th Dec.	31st Dec.
	°	°	°	°	°	°	°
Burma	−1·7	−0·3	+1·3	+1·0	+1·7	−1·2	−0·9
Assam	+0·2	−1·6	−4·5	−0·3	+1·4	+0·6	−2·1
Bengal	+2·6	+0·3	−3·0	−1·7	−0·2	−1·5	−2·7
Orissa	+8·6	+8·1	−3·7	−4·6	−5·5	−4·8	−3·5
Bihar	+3·4	−3·0	−3·9	−2·1	−1·8	−2·9	−3·5
Chota Nagpur	+8·4	+2·2	−3·7	−5·7	−5·4	−3·3	−2·2
United Provinces of Agra and Oudh.	+3·6	−2·2	−5·4	−4·7	−5·1	−3·6	−1·2
N. W. F. Province and Punjab.	+1·1	−2·1	−3·4	−5·2	−5·1	−1·2	+1·0
Sind	+1·1	−0·3	−1·4	−2·6	−3·3	−1·0	+3·4
Rajputana	+2·0	−1·2	−4·9	−7·7	−6·9	−3·7	+0·1
Gujarat	+2·4	−3·5	−3·7	−5·6	−5·1	−2·8	−1·4
Central India	+6·7	−0·7	−5·8	−7·8	−8·9	−7·7	−1·7
Central Provinces.	+9·9	+4·9	−3·9	−8·2	−8·3	−8·6	−3·1
Berar	+10·3	+9·4	−1·1	−6·2	−6·8	−7·2	−2·3
West Coast	+2·2	+1·5	+0·4	+0·9	+1·3	−0·6	−2·6
Bombay Deccan	+5·8	+5·3	+1·1	−1·2	−3·6	−6·8	−4·7
Mysore	+4·4	+4·7	+3·6	+4·1	+1·5	−4·0	−4·2
Madras Coast	+5·0	+5·2	+2·5	+0·8	−3·1	−4·9	−2·6
Madras Deccan	+6·0	+6·8	+6·7	+1·2	−0·9	−7·0	−4·6
South India	+2·9	+1·8	+1·8	+2·5	+1·5	−2·5	−2·7

The cold wave was at its greatest extension on the 29th and 30th when it covered all parts of India except the Brahmaputra valley and Tenasserim. The largest departures from the normal were registered over the central parts of the country, and on the 24th, 25th, 27th, 28th and 29th when the following large variations from the average were recorded :—

DATE.	Station.	VARIATION FROM NORMAL OF		
		Maximum temperature of date.	Minimum temperature of date.	Mean temperature of date.
		°	°	°
24th December	Hoshangabad	−8·8	−11·5	−10·2
	Indore	−8·0	−12·2	−10·1
25th „	Khandwa	−11·6	−10·6	−11·1
	Indore	−7·9	−12·3	−10·1
	Hoshangabad	−8·3	−11·0	−9·7
27th „	Hoshangabad	−9·9	−11·0	−10·5
	Jubbulpore	−8·3	−11·5	−9·9
	Indore	−8·4	−11·3	−9·9
	Seoni	−9·4	−9·1	−9·3

DATE.	Station.	VARIATION FROM NORMAL OF Maximum temperature of date.	Minimum temperature of date.	Mean temperature of date.
		°	°	°
28th DECEMBER	Jubbulpore	−8·7	−12·5	−10·6
	Seoni	−9·0	−11·7	−10·4
	Hoshangabad	−8·9	−10·6	− 9·8
	Indore	−8·4	− 10·9	− 9·7
	Raipur	−6·5	−12·7	− 9·6
	Khandwa	−6·7	−12·3	− 9·5
	Akola	−8·4	−10·1	− 9·3
	Nagpur	−8·5	−10·0	− 9·3
	Neemuch	−7·0	−11·4	− 9·2
29th „	Hoshangabad	−9·9	−12·2	−11·1
	Raipur	−7·2	−14·3	−10·8
	Jubbulpore	−6·8	−11·1	− 9·0

Unusually low minimum temperatures were recorded on the plains of north-west India during this period thus—

31°·9 was recorded at Peshawar on the 20th.
31°·0 „ „ „ Rawalpindi „ 21st.
28°·0 „ „ „ Rawalpindi „ 22nd.
30°·9 „ „ „ Khushab „ „
28°·5 „ „ „ Rawalpindi „ 23rd.
31°·9 „ „ „ Peshawar „ „
25°·0 „ „ „ Rawalpindi „ 24th.
29°·9 „ „ „ Peshawar „ „
31°·0 „ „ „ D. I. Khan „ „
31°·4 „ „ „ Khushab „ „
27°·5 „ „ „ Rawalpindi „ 25th.
28°·4 „ „ „ Peshawar „ „
27°·0 „ „ „ Rawalpindi „ 26th.
29°·9 „ „ „ Peshawar „ „
28°·0 „ „ „ Rawalpindi „ 27th.

On the 24th December the mean temperature commenced to rise in Baluchistan, on the 26th it exceeded the normal, and on the 29th and 30th was largely above the normal, and apparently this change of temperature extended eastward into north-west India. The following gives variation data for each day from the 26th to the 31st for Afghanistan, Baluchistan and the extreme north-west of India:—

PROVINCE OR DIVISION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF 24 HOURS PRECEDING 8 A.M. OF 26th Dec.	27th Dec.	28th Dec.	29th Dec.	30th Dec.	31st Dec.
	°	°	°	°	°	°
Afghanistan	−0·2	+4·3	+3·3	+4·0	−4·3	+0·2
Baluchistan	+1·0	+3·9	+9·0	+12·7	+12·1	−2·5
North-West India	−4·6	−3·9	−2·5	−0·8	+0·2	+1·5

The above shows apparently that a warm wave advanced eastward through Afghanistan and Baluchistan into north-west India, but there is no evidence that the preceding cold wave pursued a similar course. The following shows the lowest temperatures and their dates recorded at the Arabian, Turkish, Persian and Afghanistan stations during December:—

STATION.	Lowest minimum temperature recorded in December 1902.	Date on which recorded.
	°	
Baghdad	35·5	15th.
Busrah	42·0	16th.
Aden	69·9	10th.
Perim	74·0	24th and 28th.
Muscat	69·3	31st.
Meshed	20·0	16th and 18th.
Teheran	27·0	30th and 31st,
Ispahan	17·1	31st.
Bushire	46·3	31st.
Bahrein	44·9	12th.
Jask	58·3	31st.
Kabul	19·4	24th.

The preceding data show that though the lowest temperatures of the month were ordinarily recorded earlier at the Persian and Afghan stations than at the Indian stations, there does not exist sufficient regularity to justify an assumption that the cold wave which commenced to appear over India on the 19th reached India from the countries to the westward.

The following gives mean monthly temperature variation data for all the extra Indian stations for which normals are available:—

STATION.	MEAN DAILY TEMPERATURE. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°	°
Trincomalee	78·8	78·5	+0·3
Colombo	80·4	80·0	+0·4
Amini Divi	81·6	79·3	+2·3
Teheran	44·4	42·6	+1·8
Ispahan	37·4	40·8	−3·4
Bushire	62·0	62·4	−0·4
Jask	71·9	70·9	+1·0
Baghdad	53·5	53·4	+0·1
Muscat	74·0	73·1	+0·9
Aden	77·3	77·4	−0·1
Perim	80·1	79·5	+0·6
Kabul	40·1	41·3	−1·2
Kashgar	30·0	26·6	+3·4
Zanzibar	82·0	82·7	−0·7
Seychelles	78·7	79·0	−0·3

The above shows that the variations in the monthly mean temperatures were very irregular. Over the greater part of Persia the temperature was generally lower than usual.

Winds.

The winds, on the mean of the month, were more northerly than usual on the Burma coast and over the Bay Islands. The following gives data:—

Station.	Mean wind direction. Actual, December 1902.	Normal, December.	Northerly Deflection.
	°	°	
Port Blair	N 32 E	N 58 E	+26
Rangoon	N 6 E	N 41 E	+35
Diamond Island	N 19 E	N 58 E	+39
Akyab	N 1 W	N 8 W	+ 7

The velocity was extremely low at Rangoon and was lower than usual at Port Blair while at Diamond Island it was in considerable excess. The steadiness was in some excess at Diamond Island, in some defect at Akyab, and about normal elsewhere. The following gives data:—

Station.	Mean steadiness. Actual percentage, December 1902.	Normal percentage, December.	Variation of actual from normal, December 1902.	Mean wind velocity in miles per diem. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°				
Port Blair	69	66	+ 3	152	181	— 29
Rangoon	68	63	+ 5	20	117	−97
Diamond Island	61	48	+13	293	212	+81
Akyab	27	41	−14	60	57	+ 3

At Chittagong the wind, as on the Burma coast, was more northerly than the average, while the steadiness and velocity were about the average. The following gives data:—

Station.	Mean steadiness. Actual percentage, December 1902.	Normal percentage, December.	Variation of actual from normal, December 1902.	Mean wind direction. Actual, December 1902.	Normal, December.	Northerly deflection.	Mean wind velocity in miles per diem. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
				°	°				
Chittagong	53	53	0	N 1 W	N 24 W	+23	69	66	+3

Over Bengal and Orissa the wind was approximately normal in direction but the velocity was above the average at Saugor Island and Calcutta and below at False Point. The following gives data of direction and velocity:—

Station.	Mean wind direction. Actual, December 1902.	Normal, December.	Mean wind velocity in miles per diem. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°			
Saugor Island	N 1 E	N 3 E	181	169	+12
Calcutta	N 26 W	N 23 W	77	61	+16
False Point	N 32 E	N 32 E	109	151	−42

The wind was stronger and steadier than usual at Hazaribagh and Allahabad while the direction was about normal. This is shown below:—

Station.	Mean steadiness. Actual percentage, December 1902.	Normal percentage, December.	Variation of actual from normal, December 1902.	Mean wind direction. Actual, December 1902.	Normal, December.	Mean wind velocity in miles per diem. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
				°	°			
Hazaribagh	76	56	+20	N 31 W	N 44 W	138	119	+19
Allahabad	65	25	+40	N 57 W	N 47 W	78	60	+18

Over the upper Sub-Himalayas division the wind was generally more westerly than usual. The following gives data:—

Station.	Mean wind direction. Actual, December 1902.	Normal, December.	Westerly deflection.
	°	°	
Dehra Dun	S 77 W	S 75 W	+ 2
Roorkee	N 48 W	N 67 W	−19
Meerut	N 82 W	N 61 W	+21
Lahore	N 63 W	N 35 W	+28
Ludhiana	N 81 W	N 43 W	+38

This westerly wind was steadier than the average at most stations but the velocity varied irregularly from the normal. The following gives comparative data :—

Station.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, December 1902.	Normal, percentage, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
Dehra Dun	47	17	+30	12	31	−19
Roorkee	53	15	+38	43	32	+11
Meerut	55	44	+11	31	37	− 6
Lahore	14	20	− 6	21	33	−12
Ludhiana	50	27	+23	34	27	+ 7

In the upper part of the Indus valley, the wind was even lighter and less steady than the average, while the direction varied irregularly from the normal. At Kurrachee the wind was more easterly and steadier than usual but was comparatively light. The following gives data for this station :—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, December 1902.	Normal percentage, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
				°	°			
Kurrachee	34	23	+11	S 83 E	N 41 E	136	217	−81

The wind was light in Rajputana. It was north-easterly in the south and northerly in the north. The following gives data for Jaipur and Deesa :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, December 1902.	Normal, December.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°			
Jaipur	N 1 W	N 19 W	43	71	−28
Deesa	N 55 E	N 44 E	125	194	−69

The winds were thus generally fairly normal over northern India, but over Burma the direction was more northerly than usual, a variation, which may have produced the diminished temperature which, a reference to the temperature section will show, prevailed over that province. The wind was on the whole more westerly and steadier than usual over Upper India, a result probably attributable to the absence of cold weather storms during the month.

The following gives variation data of the mean air movement for the Bay Islands, Burma and all the divisions of northern India :—

Province or Division.	Mean steadiness.			Mean wind velocity in miles per diem.		
	Actual percentage, December 1902.	Normal, percentage, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal December 1902.
Bay Islands	69	66	+ 3	152	181	−29
Burma	52	51	+ 1	124	129	− 5
Bengal	61	58	+ 3	109	99	+10
Bihar	48	53	− 5	34	49	−15
Chota Nagpur	76	56	+20	138	119	+19
Orissa	53	58	− 5	109	151	−42
United Provinces	55	25	+30	41	40	+ 1
North-West Frontier Province and Punjab.	25	18	+ 7	23	40	−17
Sind	21	21	0	69	123	−54
Rajputana	49	37	+12	84	133	−49

The winds were normal in direction or perhaps a trifle more easterly than usual over the Deccan, the large amount of increased easting noticed over this division in November having practically disappeared. This is shown below :—

Station.	Mean wind direction.		
	Actual, December 1902.	Normal, December.	Easterly deflection.
	°	°	
Belgaum	S 69 E	N 88 E	...
Sholapur	N 86 E	S 83 E	...
Akola	N 83 E	N 61 E	+22
Buldana	N 88 E	N 82 E	+ 6
Khandwa	S 70 E	N 62 E	...
Nagpur	N 42 E	N 57 E	−15
Hyderabad (Deccan)	S 74 E	S 72 E	+ 2

Both the velocity and steadiness varied irregularly from the normal in this division.

The wind was about normal in direction and velocity at Bombay but at Karwar the direction was west-north-west instead of nearly north. The following gives data:—

STATION.	MEAN WIND DIRECTION.		MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, December 1902.	Normal, December.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°			
Bombay	N 20 E	N 16 E	237	236	+1
Karwar	N 70 W	N 6 W	72	66	+6

The usual north-east to east-north-east winds prevailed over most districts of south India, but at several stations there was shown slightly increased easting indicating that the actions which were influential in deflecting the winds in November were still operative to a slight extent.

The following gives comparative direction data:—

STATION.	MEAN WIND DIRECTION	
	Actual, December 1902.	Normal, December.
	°	°
Salem	N 83 E	N 77 E
Chitaldroog	S 85 E	N 83 E
Bangalore	N 88 E	N 70 E
Hassan	N 89 E	N 76 E
Mysore	N 79 E	N 80 E
Madras	N 43 E	N 25 E
Bellary	S 66 E	S 86 E

The wind's velocity was generally below the normal, as is shown below:—

STATION.	MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
Salem	72	92	—20
Chitaldroog	120	199	—79
Bangalore	164	116	+48
Hassan	50	95	—45
Mysore	163	261	—98
Madras	147	178	—31
Bellary	76	76	0

The following gives comparative data of steadiness and velocity for the Peninsular divisions:—

PROVINCE OR DIVISION.	MEAN STEADINESS.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, December 1902.	Normal percentage, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
Central Provinces	63	48	+15	76	73	+3
Berar	49	50	—1	89	106	—17
Bombay Deccan	63	67	—4	204	241	—37
West Coast	41	56	—15	155	151	+4
Madras Deccan	59	67	—8	73	79	—6
Mysore	71	83	—12	124	168	—44
Madras Coast	82	79	+3	147	178	—31
South India	63	50	+13	72	92	—20

At Quetta the wind was light and unsteady from north-north-west. This is shown below:—

HILL STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.			MEAN WIND VELOCITY IN MILES PER DIEM.		
	Actual percentage, December 1902.	Normal percentage, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Northerly deflection.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
				°	°				
Quetta	16	29	—13	N 21 W	N 61 W	+40	44	59	—15

Over the Himalayas the winds were very variable, but were on the whole more steady than usual. The following gives data for the Himalayan stations.

HILL STATION.	MEAN STEADINESS.			MEAN WIND DIRECTION.	
	Actual percentage, December 1902.	Normal percentage, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.
				°	°
Leh	55	38	+17	S 1 E	S 14 W
Srinagar	13	6	+7	N 16 W	S 84 E
Simla	14	14	0	S 5 W	S 11 W
Chakrata	34	15	+19	S 49 E	S 64 W
Ranikhet	34	23	+11	S 72 W	S 51 W
Katmandu	50	47	+3	S 89 W	N 67 W
Darjeeling	32	3	+29	N 66 E	N 55 W

At the central hill stations the wind varied between north-east and south-east, and was, on the whole, more easterly and steadier and stronger than the average. This is shown below :—

Hill Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, December 1902.	Normal percentage, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
				°	°			
Mount Abu . .	36	13	+23	N 45 E	N 13 E	99	93	+ 6
Pachmarhi . .	23	21	+ 2	S 57 E	N 31 E	60	64	— 4
Chikalda . .	13	8	+ 5	S 45 E	S 74 W	168	117	+51

In the Gulf of Aden the wind was lighter than usual but was about normal in direction. The following gives data for Aden and Perim :—

Station.	Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual, December 1902.	Normal, December.	Actual, December 1902.	Normal, December.	Variaiton of actual from normal, December 1902.
	°	°			
Aden . . .	N 77 E	S 87 E	232	313	—81
Perim . . .	S 56 E	S 60 E	361	458	—97

In the Equatorial Belt the direction was about the average, but the wind was steadier and stronger than usual as is shown below:—

Station.	Mean steadiness.			Mean wind direction.		Mean wind velocity in miles per diem.		
	Actual percentage, December 1902.	Normal percentage, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
				°	°			
Zanzibar . .	63	62	+1	N 40 E	N 35 E	163	152	+11
Seychelles . .	84	61	+23	N 40 W	N 44 W	196	156	+40

Humidity and Cloud.

The variations of the mean humidity conditions of the month from the normal were large and strongly marked. Over practically the whole of the Peninsula and the Central Provinces the relative humidity was in excess, the amount of the excess increasing from the coast inland, and being at a maximum over Mysore, the Bombay Deccan and the south of Berar. Within this area the mean relative humidity was more than 10 above the normal, as is shown by the following comparative data :—

Station.	Relative Humidity.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	%	%	
Belgaum	74	50	+24
Sholapur	62	48	+14
Chitaldroog	68	56	+12
Buldana	58	47	+11

On the other hand, all over the north of India, the north of the Bay and Burma, the mean relative humidity was less than usual both on the hills and plains. The deficiency was considerable over a large part of this large area and was at a maximum amounting to 10 or more over the east of the United Provinces, eastern Rajputana, the east of the Punjab and at some of the hill stations in the Himalayas. The following gives comparative data for these stations :—

Hill or Plain Station.	Relative Humidity.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	%	%	
Leh	28	63	—35
Jaipur	35	49	—14
Chakrata	38	51	—13
Meerut	50	62	— 2
Ranikhet	46	58	—12
Ludhiana	52	62	—10

The preceding data show that there was a certain amount of resemblance between the anomalous humidity conditions in December and those of the preceding month of November. In both months there was an excess of humidity over the Peninsula and the Central Provinces and a deficiency over a large part of northern India, the Bay and Burma, but while in November there was a considerable excess of humidity over the Indus valley and the Punjab, these divisions in December had a lower humidity than usual.

The following gives detailed information for the different divisions: At Port Blair the absolute humidity was in considerable excess so that, though the mean temperature exceeded the normal, the relative humidity was above the average. On the Burma coast, on the contrary, the absolute humidity was in defect and the relative humidity considerably short of the normal. The following gives data for the stations in this area:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Port Blair . .	·868	·827	+·041	80	79	+1
Rangoon . .	·612	·651	—·039	67	72	—5
Diamond Island .	·652	·683	—·031	67	73	—6

In Bengal and Orissa the air was much drier than usual, the mean temperature about normal and the relative humidity in considerable defect. This is shown below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Chittagong . .	·475	·522	—·047	74	76	—2
Calcutta . .	·388	·432	—·044	61	70	—9
Saugor Island .	·461	·496	—·035	68	73	—5
False Point . .	·484	·496	—·012	71	74	—3

Similar conditions prevailed over the Gangetic Plain and Chota Nagpur, except that over this area the temperature was lower than usual. The following gives comparative data of humidity:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Hazaribagh . .	·232	·374	—·042	44	52	—8
Darbhanga . .	·381	·422	—·041	68	73	—5
Allahabad . .	·314	·340	—·026	61	66	—5

In the upper sub-Himalayas the air was very dry so that though the temperature was below the average very generally, the relative humidity was also low. The following gives data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December 1902.	Normal December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Dehra Dun . .	·232	·276	—·044	54	63	—9
Roorkee . .	·250	·289	—·039	61	64	—3
Meerut . .	·218	·284	—·066	50	62	—12
Lahore . . .	·242	·274	—·032	56	58	—2
Ludhiana . .	·210	·277	—·067	52	62	—10

In the Indus valley the absolute humidity was only in trifling defect and the relative humidity slightly below the normal. This is shown below:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Peshawar . .	·208	·227	—·019	55	60	—5
Kurrachee . .	·365	·368	—·003	49	53	—4

At Jaipur the air, as in the upper sub-Himalayas, was very dry and the relative humidity in large defect, while at Deesa the absolute and relative humidities were slightly

deficient. The following gives data for these two stations:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, December 1902.	Normal, December 1902.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Jaipur	·200	·271	—·071	35	49	—14
Deesa	·243	·254	—·011	33	36	— 3

At Akola, Khandwa, Nagpur, Bellary, Jaipur and Deesa the actual mean humidity of the month was very low at 4 P.M., at which hour on the following dates the following low humidities were recorded:—

Station.	Date.	Hour.	Lowest humidity recorded during December 1902.
			%
Meerut	29th December	4 P.M.	19
Ludhiana	30th ,,	,,	18
Hazaribagh	31st ,,	,,	17
Udaipur	28th ,,	,,	17
Akola	28th ,,	,,	17
,,	31st ,,	,,	17
Buldana	30th ,,	,,	17
Khandwa	24th ,,	,,	17
Akola	30th ,,	,,	16
Deesa	5th ,,	,,	15
,,	22nd ,,	,,	15
,,	23rd ,,	,,	15
Sholapur	30th ,,	,,	15
Akola	29th ,,	,,	15
Jaipur	8th ,,	,,	14
Udaipur	27th ,,	,,	14
Deesa	21st ,,	,,	13
,,	30th ,,	,,	13
Bellary	29th ,,	,,	13
Deesa	12th ,,	,,	12
,,	31st ,,	,,	12
,,	28th ,,	,,	11
,,	24th ,,	,,	10
Khandwa	26th ,,	,,	10
Nagpur	30th ,,	,,	10
Deesa	25th ,,	,,	9
,,	27th ,,	,,	9
,,	29th ,,	,,	9

The following gives comparative data of mean temperature and of mean absolute and relative humidities for the Bay Islands, Burma, and the different divisions of northern India:—

Province or Division.	Mean temperature variation, December 1902.	Absolute Humidity.			Relative Humidity.		
		Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	"	"	"	%	%	
Bay Islands	+0·9	·868	·827	+·041	80	79	+1
Burma	0	·632	·667	—·035	67	73	—6
Bengal	0	·441	·483	—·042	68	73	—5
Bihar	—1·8	·381	·422	—·041	68	73	—5
Chota Nagpur.	—0·2	·232	·274	—·042	44	52	—8
Orissa	—0·3	·484	·496	—·012	71	74	—3
United Provinces.	—1·8	·254	·298	—·044	57	64	—7
N.-W. F. Province and Punjab.	—0·3	·220	·259	—·039	54	60	—6
Sind	+1·2	·365	·368	—·003	49	53	—4
Rajputana	+0·7	·222	·263	—·041	34	43	—9

The air contained much more vapour than usual over the Deccan, so that, notwithstanding the generally high temperature, the relative humidity was in large excess. This is shown below:—

Station.	Absolute Humidity.			Relative Humidity.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Belgaum	·534	·372	+·162	74	50	+24
Sholapur	·492	·372	+·120	62	48	+14
Akola	·419	·331	+·088	60	51	+ 9
Buldana	·390	·324	+·066	58	47	+11
Khandwa	·376	·319	+·057	58	50	+ 8
Nagpur	·407	·349	+·058	59	52	+ 7
Hyderabad (D)	·531	·438	+·093	68	62	+ 6

At Bombay the absolute humidity was in excess but the mean temperature was above the normal and the relative humidity was normal, while at Karwar the air was very much damper than usual, so that although the temperature

was high, the relative humidity was in considerable excess. The following gives data :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Bombay . .	·645	·615	+·030	69	69	0
Karwar . .	·717	·603	+·114	73	67	+6

Over southern India conditions were similar to those prevailing at Karwar. The air was much damper than usual and though the temperature was high the relative humidity was in large excess. The following gives data :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Salem	·715	·589	+·126	80	71	+ 9
Chitaldroog . .	·541	·419	+·122	68	56	+12
Bangalore . . .	·545	·455	+·090	76	68	+ 8
Hussan . . .	·539	·452	+·087	75	65	+10
Mysore . . .	·561	·454	+·107	71	62	+ 9
Madras . . .	·766	·704	+·062	83	79	+ 4
Bellary . . .	·516	·467	+·049	60	58	+ 2

The following gives comparative data of mean tempera ture and of mean humidity for the different divisions of the Peninsula :—

PROVINCE OR DIVISION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.			Mean temperature variation, December 1902.
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	
	"	"	"	%	%		°
Central Provinces.	·292	·234	+·058	59	51	+ 8	+0·1
Berar .	·405	·328	+·077	59	49	+10	−0·2
West Coast	·681	·609	+·072	71	68	+ 3	+1·1
Bombay Deccan.	·513	·372	+·141	68	49	+19	+0·6
Madras Deccan.	·524	·453	+·071	64	60	+ 4	+2·5
Madras Coast.	·766	·704	+·062	83	79	+ 4	+0·7
Mysore .	·547	·445	+·102	73	63	+10	+2·0
South India	·715	·589	+·126	80	71	+ 9	+1·4

At Quetta both the absolute and relative humidities were in slight excess. At Leh there was a very large defect in the relative humidity, but the variation appears to be somewhat doubtful. At all the Himalayan hill stations except Srinagar the air was drier than usual and the relative humidity in more or less considerable defect. This is shown below :—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Quetta . . .	·163	·151	+·012	61	57	+4
Leh . . .	·028	·080	−·052	28	63	−35
Srinagar . .	·180	·175	+·005	80	80	0
Simla . . .	·107	·137	−·030	37	45	− 8
Chakrata . .	·122	·151	−·029	38	51	−13
Ranikhet . .	·159	·201	−·042	46	58	−12
Katmandu . .	·224	·267	−·043	70	73	− 3
Darjeeling . .	·174	·201	−·027	62	76	−14

At Mount Abu as at Deesa the absolute and relative humidities were in some defect, but at the two hill stations in the central parts of the country the air was damper than usual and the relative humidity in considerable to large excess. This is shown below :—

HILL STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Mount Abu . .	·209	·215	−·006	40	42	−2
Pachmarhi . .	·313	·275	+·038	62	55	+7
Chikalda . .	·366	·303	+·063	65	51	+14

At Aden the air was drier than usual. The following gives data :—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Aden . . .	·601	·634	−·033	65	69	−4

In the Equatorial belt humidity conditions were about normal, as is shown by the following data:—

STATION.	ABSOLUTE HUMIDITY.			RELATIVE HUMIDITY.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	"	"	"	%	%	
Zanzibar	·879	·857	+·022	81	78	+3
Seychelles	·815	·811	+·004	81	81	0

The variations in the mean cloud amount of the month from the normal agreed generally with the variations in the humidity conditions. The only important difference was over the Bay area where the cloud amount was generally in excess while the humidity was in defect.

Cloud was in general excess over the Peninsula and the Central Provinces. The amount of the excess increased from the coast inland, and was at a maximum over Mysore, the Deccan and Berar. Within this large area the excess was more than 2·0, as is shown by the following comparative data:—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°	°
Sholapur	5·8	3·9	+2·9
Mysore	6·6	3·8	+2·8
Salem	7·0	4·3	+2·7
Belgaum	5·3	2·6	+2·7
Hassan	6·6	4·0	+2·6
Khandwa	4·4	1·8	+2·6
Hyderabad (D)	4·9	2·4	+2·5
Akola	3·9	1·7	+2·2

Over northern India the sky was unusually clear of cloud, on the mean of the month, and this increased serenity extended over a large part of Burma. The deficiency in the cloud amount was greatest over north-west India and in Arakan and amounted to 1·0 or more at the stations for which comparative data are given below:—

STATION.	MEAN CLOUD AMOUNT.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°	°
Ludhiana	1·3	3·2	−1·9
Akyab	0·5	2·3	−1·8
Roorkee	0·8	2·2	−1·4
Peshawar	2·1	3·5	−1·4
Lahore	1·3	2·4	−1·1
Meerut	0·7	1·8	−1·1
Jacobabad	1·2	2·2	−1·0
Kurrachee	0·8	1·8	−1·0

At Quetta the sky was, relatively to the normal, as clear as over the Sind plains. This is shown below:—

HILL STATION.	MEAN CLOUD AMOUNT.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°	°
Quetta	1·8	2·9	−1·1

At all the Himalayan hill stations the sky was clearer of cloud than usual, the deficiency having been greatest at Srinagar, Leh, Simla and Katmandu. The following gives comparative data for the Himalayan stations:—

HILL STATION.	MEAN CLOUD AMOUNT.		
	Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°	°
Srinagar	2·0	5·3	−3·3
Leh	2·9	5·6	−2·7
Simla	2·0	3·9	−1·9
Katmandu	1·1	2·8	−1·7
Ranikhet	1·0	2·6	−1·6
Chakrata	1·9	3·1	−1·2
Darjeeling	3·3	4·3	−1·0

At the Rajputana and Central Provinces' hill stations, on the contrary, the cloud amount, as on the neighbouring plains, was in excess of the normal. This is shown below :—

HILL STATION.	MEAN CLOUD AMOUNT. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°	°
Pachmarhi	4·1	2·1	+2·0
Chikalda	3·9	2·4	+1·5
Mount Abu	2·0	1·7	+0·3

The sky was practically cloudless, the mean cloud amount of the month having been less than 1·0 at the stations for which comparative data are given below :—

STATION.	MEAN CLOUD AMOUNT. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°	°
Darbhanga	0·8	0·9	—0·1
Roorkee	0·8	2·2	—1·4
Kurrachee	0·8	1·8	—1·0
Meerut	0·7	1·8	—1·1
Akyab	0·5	2·3	—1·8

The sky was very cloudy over the Deccan and south India, and the mean cloud amount exceeded 5·0 at the following places :—

STATION.	MEAN CLOUD AMOUNT. Actual, December 1902.
	°
Salem	7·0
Hassan	6·6
Mysore	6·6
Periyakulam	6·6
Madras	6·0
Sholapur	5·8
Bangalore	5·5
Bellary	5·5
Belgaum	5·3
Waltair	5·1

At Aden and Perim the cloud amount was less than usual. This is shown below :—

STATION.	MEAN CLOUD AMOUNT. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	°	°	°
Aden	2·4	3·4	—1·0
Perim	0·3	1·6	—1·3

At the Seychelles the sky, on the mean of the month was slightly clearer than usual, while at Zanzibar it was more cloudy than usual. The following gives data :—

STATION.	MEAN CLOUD AMOUNT. Actual, December 1902.	Normal, December.	Variation of actual from normal, December 1902.
	•	•	•
Zanzibar	7·2	3·9	+3·3
Seychelles	6·1	6·8	—0·7

Rainfall.

December is usually the month of least rainfall in India. The normal rainfall is less than an inch in amount for the whole month over all parts of the country with the exception of south, south-central and the coast districts of Madras. The normal rainfall exceeds 10 inches at the east coast (south) stations but diminishes in amount rapidly both towards the interior and towards the north, and is less than 1 inch to the west of a line running from Cochin to Nellore, while it is less than half an inch over the Deccan, central and northern India and in Burma.

During the month under review there was actually or practically no rain over north Bombay, the Punjab, Rajputana, the United Provinces, the east of Central India, Bihar, Bengal (except deltaic), Assam, Arakan and upper Burma. Elsewhere more or less rain was received, the total for the month ranging from about half an inch at Bhavnagar Para, Khandwa, Chanda, Chaibassa and Barisal to over 17 inches at Cuddalore. The distribution of the actual rain of the month is given on Plate IV, which shows that northern India was practically rainless, while the whole of the Peninsula, the central districts of India, Tenasserim and

lower Burma, received rain. The north-western hill stations received rain while the Sikkim and Assam hills were rainless.

The chief periods of disturbance and of rainfall were :—

1. The 1st to the 6th when moderate to heavy rain fell over southern India.

2. The 6th to the 14th when the west of the Peninsula received fairly general rain, and the central parts of the country scattered showers.

3. The 15th to the 18th when southern India received moderate rain and the Bombay Deccan scattered showers.

4. The 22nd and 23rd when the north coasts of the Bay received showers.

5. The 28th and 29th when Burma received some showers.

The following table gives mean actual, mean normal and variation rainfall data for the 57 meteorological divisions or districts into which India is divided :—

Province.	Division.	Number of rainy days.		Rainfall.		
		Average actual, December 1902.	Average normal, December.	Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.
				Inches.	Inches.	Inches.
Burma	Tenasserim	1·2	0·3	0·83	0·11	+0·72
	Lower Burma (Deltaic)	1·7	0·3	0·67	0·08	+0·59
	Central do.	1·0	0·4	0·52	0·17	+0·35
	Upper do.	0·3	0·7	0·12	0·36	−0·24
	Arakan	0·2	0·5	0·05	0·41	−0·36
Bengal and Assam	Eastern Bengal	0·3	0·4	0·06	0·25	−0·19
	Assam (Surma)	0	0·5	0·01	0·35	−0·34
	Do. (Hills)	0·5	1·1	0·15	0·49	−0·34
	Do. (Brahmaputra)	0·3	1·1	0·08	0·46	−0·38
	Deltaic Bengal	0·9	0·3	0·36	0·14	+0·22
	Central do.	0·1	0·2	0·02	0·10	−0·08
	North do.	0	0·3	0	0·12	−0·12
	Bengal Hills	0	0·6	0	0·22	−0·22
	Orissa	1·9	0·4	1·70	0·23	+1·47
	Chota Nagpur	0·3	0·4	0·14	0·22	−0·08
	Bihar (South)	0	0·3	0	0·12	−0·12
	Do. (North)	0	0·3	0	0·09	−0·09
United Provinces of Agra and Oudh.	United Provinces (East)	0	0·4	0	0·22	−0·22
	Oudh (South)	0	0·6	0	0·34	−0·34
	Do. (North)	0	0·6	0	0·30	−0·30
	United Provinces (Central)	0	0·7	0·01	0·34	−0·33
	Do. do. (West)	0	0·8	0	0·36	−0·36
	Do. do. (Submontane, East)	0	0·4	0	0·15	−0·15
	Do. do. (Do. West)	0	1·1	0	0·55	−0·55
	Do. do. (Hills)	0	1·4	0	0·81	−0·81
Punjab and North-West Frontier Province.	Punjab (South-East)	0	0·8	0	0·39	−0·39
	Do. (South)	0	0·8	0	0·35	−0·36
	Do. (Central)	0	0·7	0	0·44	−0·44
	Do. (Submontane)	0	1·1	0	0·68	−0·68
	Do. (Hills)	0	1·9	0	1·32	−1·32
	Do. (North)	0·1	1·3	0·02	0·55	−0·53
	Do. (West)	0	0·5	0	0·19	−0·19
Bombay and Malabar Coast Districts (Madras).	Malabar	5·3	1·1	4·86	0·63	+4·23
	Travancore	6·6		4·80		
	Madras (South-Central)	6·1	2·2	4·29	1·28	+3·01
	Coorg	7·1		8·37		
	Mysore	3·9	1·1	3·23	0·59	+2·64
	Konkan	3·9	0·2	2·50	0·08	+2·42
	Bombay Deccan	5·3	0·4	4·07	0·24	+3·83
	Khandesh	3·0	0·4	1·30	0·22	+1·08
Central Provinces and Berar.	Berar	3·9	0·4	1·55	0·28	+1·27
	Central Provinces (West)	2·7	0·6	0·99	0·39	+0·60
	Do. do. (Central)	0·9	0·5	0·32	0·27	+0·05
	Do. do. (East)	0·6	0·4	0·26	0·21	+0·05

Province.	Division.	Number of rainy days. Average actual, December 1902.	Number of rainy days. Average normal, December.	Rainfall. Average actual, December 1902.	Rainfall. Average normal, December.	Rainfall. Variation of actual from normal, December 1902.
				Inches.	Inches.	Inches
Bombay (North)	Gujarat	1·3	0·1	0·51	0·04	+0·47
	Kathiawar and Cutch	0·6	0·2	0·33	0·06	+0·27
	Sind	0	0·3	0	0·11	−0·11
	Baluchistan Hills	1·0	2·3	0·28	0·97	−0·69
Rajputana and Central India.	Central India (East)	0·6	0·9	0·22	0·41	−0·19
	Rajputana (East), Central India (West)	0·2	0·9	0·07	0·40	−0·33
	Rajputana West	0	0·4	0	0·15	−0·15
Madras	East Coast (North)	1·8	0·6	1·03	0·59	+0·44
	Madras (Central)	1·4	0·8	0·76	0·43	+0·33
	East Coast (Central)	3·4	2·2	6·97	2·07	+4·90
	East Coast (South)	8·4	5·2	9·02	4·97	+4·05
	Madras (South)	7·8	4·5	5·57	3·55	+2·02

The average actual rainfall was less than one tenth of an inch in amount in 27 out of the 57 divisions. In the remaining divisions it ranged from 0·12″ in upper Burma to 9·02″ in the east coast (south) division.

The chief abnormal features of the rainfall of the month were :—

1. An excess of 0·44″ on the average of all divisions.
2. Heavier rain than usual over Tenasserim and lower and central Burma.
3. Heavier rain than usual over the Peninsula and as far north as Kathiawar, Gujarat, the Central Provinces, Berar and Orissa.
4. Lighter rain than usual over northern India with the exception of deltaic Bengal.

Rain was received in all divisions of Burma during the month. In Mergui showers were received between the 4th and the 14th but the only general fall was on or about the 28th and 29th when moderately general showers were reported. The total fall of the month was in excess of the normal in Tenasserim, deltaic Burma and central Burma and in slight defect in upper Burma and Arakan. This is shown below :—

Division.	Rainfall. Average actual, December 1902.	Rainfall. Average normal, December.	Rainfall. Variation of actual from normal, December 1902.	Rainfall. Percentage variation from normal.	Number of rainy days. Average actual, December 1902.	Number of rainy days. Average normal, December.
	Inch.	Inch.	Inch.			
Tenasserim	0·83	0·11	+0·72	+655	1·2	0·3
Lower Burma Deltaic.	0·67	0·08	+0·59	+738	1·7	0·3
Central Burma	0·52	0·17	+0·35	+206	1·0	0·4
Upper Burma	0·12	0·36	−0·24	− 67	0·3	0·7
Arakan	0·05	0·41	−0·36	− 88	0·2	0·5

On the 19th and 20th there were light moderately general showers over the Brahmaputra valley and during the latter half of the month light scattered showers over the Assam hills, but during the greater part of the month and over the greater part of the province of Assam the weather was rainless.

The month was even drier than usual over the greater part of Bengal but in south-west Bengal, in east Bengal and in Orissa and Chota Nagpur there were fairly general showers between the 21st and 23rd. The rainfall on this occasion was heaviest in Orissa and amounted to over 2 inches in 24 hours at the following places:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Puri	Bhanpur	21st December	2·10
Cuttack	Jagatsingpur	22nd „	2·50
	Cuttack	„ „	2·38
Puri	Pipli	„ „	2·35
Cuttack	Banki	„ „	2·24

The following gives comparative data for those districts which received rain during the month under review:—

DISTRICT.	RAINFALL. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Burdwan	0·05	0·10	—0·05	—50
Bankura	0·11	0·11	0	0
Midnapore	1·74	0·13	+0·61	+469
Hooghly	0·32	0·18	+0·14	+78
Howrah	0·82	0·13	+0·69	+531
24-Parganas	0·53	0·17	+0·36	+212
Calcutta	0·66	0·31	+0·35	+113
Nadia	0·04	0·11	—0·07	—64
Jessore	0·06	0·14	—0·08	—57
Khulna	0·16	0·15	+0·01	+7
Jalpaiguri	0·02	0·21	—0·19	—90
Dacca	0·03	0·14	—0·11	—79
Faridpur	0·04	0·11	—0·07	—64
Backergunge	0·20	0·32	—0·12	—38
Tippera	0·02	0·16	—0·14	—88
Noakhali	0·14	0·39	—0·25	—64
Chittagong	0·01	0·45	—0·44	—98
Chittagong Hill Tracts	0·08	0·38	—0·30	—79
Cuttack	2·06	0·29	+1·77	+610
Balasore	1·08	0·19	+0·89	+468
Puri	2·43	0·27	+2·16	+800
Ranchi	0·05	0·20	—0·15	—75
Manbhum	0·05	0·12	—0·07	—58
Singhbhum	0·44	0·18	+0·26	+144

The average total rainfall of the month was onetenth of an inch or less in east Bengal, central Bengal, north Bengal, the Bengal hills, and Bihar.

In the Untied Provinces there was no rain throughout the month.

In the Punjab there were one or two light scattered showers on the 16th and 31st, but the weather was rainless over the greater part of the province both on the hills and plains.

Baluchistan received light showers on the 3rd and 4th and between the 14th and 16th. The rainfall of the month was very scanty and in large defect, as is shown by the following statement:—

PROVINCE.	RAINFALL. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
Baluchistan Hills	Inch. 0·28	Inch. 0·97	Inch. —0·69	—71

Kashmir received practically no rain until the 30th and 31st when light showers were reported from a few places and Uri, Karnah and Sonemarg received moderate snow.

Western Rajputana received no rain throughout. Eastern Rajputana reported showers in some places between the 11th and 17th when the following amounts exceeding 1″ in 24 hours were registered:—

STATE.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
KOTAH	Manohar Thana	11th December	1·12
KUSALGARH	Kusalgarh	12th "	1·03

The total rainfall of the month was even less than usual, as is shown by the following which gives a comparison for some of the larger states:—

STATE.	RAINFALL. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Bikaner	0	0·18	—0·18	—100
Jaipur	0	0·36	—0·36	—100
Alwar	0	0·49	—0·49	—100
Bharatpur	0	0·53	—0·53	—100
Dholpur	0	0·35	—0·35	—100
Kotah	0·14	0·47	—0·33	—70
Ajmer Merwara	0	0·37	—0·37	—100
Udaipur	0·19	0·14	+0·05	+36

The rainfall in Central India was heavier than that in Rajputana and fell between the 12th and 18th. The total average fall of the month was above the normal in Indore, Rutlam and Bhopal Agency, while it was below the normal in all the other states, as is shown by the following

comparative statement for the larger states of Central India :—

STATE.	RAINFALL. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Indore	1·16	0·18	+0·98	+544
Rutlam	1·41	0·23	+1·18	+513
Bhopal Agency	0·70	0·43	+0·27	+ 63
Gwalior	0·36	0·39	—0·03	— 8
Rewah	0·02	0·45	—0·43	— 96
Bundelkhand	0·03	0·44	—0·41	— 91

Light showers fell over parts of the Central Provinces between the 7th and the 14th and again on the 21st and the 22nd. The falls were generally light, but the total amount for the month generally exceeded the small normal fall. This is shown below:—

DISTRICT.	RAINFALL. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Chanda	0·43	0·23	+0·20	+ 87
Bhandara	0·55	0·25	+0·30	+120
Balaghat	0·44	0·16	+0·28	+175
Raipur	0·08	0·18	—0·10	— 56
Bilaspur	0·06	0·20	—0·14	— 70
Sambalpur	0·58	0·12	+0·46	+383
Saugor	0·02	0·46	—0·44	— 96
Damoh	0·01	0·26	—0·25	— 96
Jubbulpore	0	0·28	—0·28	—100
Mandla	0·12	0·19	—0·07	— 37
Seoni	0·50	0·35	+0·15	+ 43
Narsingpur	0·70	0·22	+0·48	+218
Hoshangabad	1·74	0·44	+1·30	+295
Nimar	0·61	0·22	+0·39	+177
Betul	0·69	0·48	+0·21	+ 44
Chhindwara	0·92	0·17	+0·75	+441
Wardha	0·62	0·30	+0·32	+107
Nagpur	0·98	0·33	+0·65	+197

General rain occurred over Berar between the 7th and the 14th. The amounts were somewhat heavier than over the neighbouring districts of the Central Provinces and exceeded 1″ in 24 hours at the following places on the following dates:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
BULDANA	Deulgaon Raja	8th Dec.	1·71
	Donegaon	„ „	1·27
	Mehkar	„ „	1·12
AKOLA	Pathur	„ „	1·09
BULDANA	Chikhli	10th „	2·10
AKOLA	Pathur	„ „	2·06
BASIM	Basim Civil Station	14th „	1·01

The total fall of the month was nearly six times the small normal amount, as is shown by the following comparative statement:—

DIVISION.	RAINFALL. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.	NUMBER OF RAINY DAYS. Average actual, December 1902.	Average normal, December.
	Inches.	Inch.	Inches.			
Berar	1·55	0·28	+1·27	+454	3·9	0·4

In the southern half of the Bombay Presidency there was a fall of rain between the 6th and the 12th and a second fall on the 17th and 18th, while in the northern half there was only one fall, *viz.*, on the 12th and 13th.

In the Konkan rain commenced on the 6th and continued until the 12th after which scattered showers were received up to the 21st or 22nd. The rainfall was heaviest in the south and the following falls exceeding 2″ in 24 hours were registered:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
NORTH KANARA	Honavar	6th December	2·90
	Kumta	7th „	3·02
	Honavar	„ „	2·45
	Siddapur	„ „	2·43
	Haliyal	9th „	5·04
	Mundgad	„ „	3·57
	Supa	„ „	2·40
	Siddapur	„ „	2·30
RATNAGIRI	Vengurla	12th „	2·60
	Chiplun	18th „	2·55

The following gives comparative data for the districts in the Konkan division, and shows that the month's rainfall was in very large excess of the small normal fall :—

District.	Rainfall. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
North Kanara	5·58	0·12	+5·46	+4550
Savantvadi	2·18	0·04	+2·14	+5350
Ratnagiri	2·64	0·09	+2·55	+2833
Kolaba	1·19	0·06	+1·13	+1883
Thana	0·86	0·06	+0·80	+1333

In the Karnatak there occurred general rain between the 6th and the 10th, scattered showers on the 13th and 14th and fairly general showers on the 17th and 18th. The amounts were much heavier than usual and exceeded 2" in 24 hours at the following places on the following dates :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Dharwar	Ron	6th December	6·70
Belgaum	Khanapur	" "	2·98
Bijapur	Badami	" "	2·88
Dharwar	Dharwar	" "	2·28
	Haveri	" "	2·25
Kolhapur, etc.	Ramdurg	" "	2·07
Belgaum	Huki	7th "	4·60
Dharwar	Gdag	" "	4·05
	Ranebennur	" "	3·19
Kolhapur, etc.	Sangli	" "	2·55
Dharwar	Dharwar	" "	2·48
	Navalgund	" "	2·40
Belgaum	Athni	" "	2·35
Dharwar	Hubli	" "	2·30
Kolhapur, etc.	Kolhapur	" "	2·25
Dharwar	Nargund	" "	2·23
Kolhapur, etc.	Shirol	" "	2·21
Belgaum	Khanapur	8th "	3·25
Dharwar	Bankapur	" "	2·82
Belgaum	Belgaum	9th "	4·85
Dharwar	Hangal	" "	2·50
Belgaum	Murgod	" "	2·38

The total rainfall of the month was in large excess, as is shown by the following table which gives comparative data for the different districts in this division :—

District.	Rainfall. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal
	Inches.	Inch.	Inches.	
Dharwar	5·73	0·19	+5·54	+2916
Bijapur	2·99	0·28	+2·71	+ 968
Belgaum	6·04	0·21	+5·83	+ 278

In the south Deccan the rainfall conditions were very similar. There occurred fairly general rain between the 6th and the 14th, and showers on the 17th and 18th. The rainfall was as heavy as in the Karnatak, and the following amounts exceeding 3" in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Sholapur	Sangola	7th December	3·68
	Akluj	9th "	3·84
	Malsiras	10th "	3·80
Satara	Mhasvad	" "	3·60
Poona	Indapur	" "	3·43

The following gives comparative data for the districts in this division :—

District.	Rainfall. Average actual, December. 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Satara	3·82	0·23	+3·59	+1561
Sholapur	4·52	0·34	+4·18	+1229
Poona	2·34	0·30	+2·04	+ 680

Khandesh had practically only one rainy period, *viz.*, between the 7th and the 13th, and the falls were less heavy than in the Deccan districts. The month's rainfall was,

however, in large excess, as is shown by the following comparative data for the different districts:—

District.	Rainfall. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Ahmednagar	3·34	0·43	+1·91	+444
Nasik	1·41	0·21	+1·20	+571
Khandesh	0·68	0·11	+0·57	+518

Gujarat also had one period of rainfall, *viz.*, on the 12th and 13th. The rainfall though less heavy than in the Deccan, etc., was much heavier than usual, as is shown by the following comparative data:—

District.	Rainfall. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inch.	Inch.	Inch.	
Surat	0·83	0·02	+0·81	+4050
Broach	0·58	0·03	+0·55	+1833
Kaira	0·18	0·03	+0·15	+500
Panch Mahals	0·67	0·10	+0·57	+570
Ahmedabad	0·29	0·05	+0·24	+480

In Sind there was no rain throughout the month.

Mysore had two periods of rainfall one extending from the 4th to the 11th, the second from the 15th to the 18th. During the first period the rainfall was heavy and amounts exceeding 4″ in 24 hours were registered at the following places:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Hassan	Belur	6th December	4·09
Shimoga	Shikarpur	9th ,,	5·83
Hassan	Manjarabad	,, ,,	5·36
Shimoga	Shimoga	,, ,,	4·35
	Sorab	,, ,,	4·05

The month's rainfall was about five times as heavy as usual, as is shown by the following comparative statement for the different districts:—

District.	Rainfall. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Bangalore	1·49	0·59	+0·90	+153
Kolar	1·07	0·77	+0·30	+39
Tumkur	0·84	0·50	+0·34	+68
Mysore	2·97	0·68	+2·29	+337
Hassan	6·26	0·87	+5·39	+620
Shimoga	5·27	0·35	+4·92	+1406
Kadur	6·48	0·73	+5·75	+788
Chitaldroog	3·56	0·25	+3·31	+1324

The Madras Presidency received rain during three periods and the general rainfall of the province was in large excess.

In Malabar rain occurred between the 4th and 9th, the 15th and 18th and on the 20th and 21st. The rainfall was heaviest during the first period when the following amounts exceeding 4″ in 24 hours were recorded:—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Malabar	Kuttiadi	6th December	5·71
	Palghat	,, ,,	5·50
South Canara	Beltangadi	,, ,,	5·19
Malabar	Manjeri	,, ,,	4·65
	Mankara	,, ,,	4·56
	Angadipuram	,, ,,	4·25
	Mankara	7th ,,	4·02

The month's rainfall was much heavier than usual, as is shown by the following comparative data for the two districts:—

District.	Rainfall. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Malabar	4·91	0·76	+4·15	+546
South Canara	4·74	0·40	+4·34	+185

In south Madras there was general rain up to the 6th and showers between the 7th and 11th and the 15th to the 1 th. The heaviest rainfall was between the 4th and the 6th when the following amounts exceeding 4″ in 24 hours were recorded :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Tinnevelly	Sivakasi	4th December	6·12
Madura	Vattanam	6th „	4·61
	Theethandathanam	„ „	4·21

The month's rainfall was considerably heavier than usual, as is shown by the following comparative data for the two districts :—

District.	Rainfall. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madura	4·61	3·39	+1·22	+36
Tinnevelly	6·57	3·73	+2·84	+76

In south-central Madras rain fell between the 3rd and the 6th, the 8th and 11th, and the 15th and 18th. Heavy rain was received in parts of Coimbatore on the 6th when the following amounts exceeding 4″ in 24 hours were recorded :—

District.	Station.	Rainfall during 24 hours preceding 8 A.M. of 6th December 1902.
		Inches.
Coimbatore	Udamalpet	6·50
	Pollachi	5·76

The total rainfall was in large excess, as is shown by the following comparative data for the districts :—

District.	Rainfall. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Salem	3·66	1·28	+2·38	+186
Coimbatore	5·16	1·32	+3·84	+291

Central Madras had one period of fairly general rain on the 15th and 16th, the remainder of the month having been fine with a few passing showers. The rainfall of the month except in Anantapur was, however, considerably heavier than usual, as is shown by the following comparative data for the districts contained in the division :—

District.	Rainfall. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Cuddapah	1·15	1·04	+0·11	+11
Anantapur	0·14	0·23	−0·09	−39
Bellary	1·30	0·15	+1·15	+767
Kurnool	0·39	0·17	+0·22	+129

The north division of the east coast received rain on the 16th and 17th and between the 21st and 24th. The rainfall was not generally very heavy but the total for the month was in considerable excess of the normal. The following gives comparative data for the districts :—

District.	Rainfall. Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inch.	Inches.	
Ganjam	1·10	0·89	+0·21	+24
Vizagapatam	0·98	0·90	+0·08	+ 9
Godavari	0·56	0·41	+0·15	+37
Kistna	1·53	0·33	+1·20	+364

The central division received light showers on the 4th and 5th, heavy general rain on the 15th and 16th, and showers between the 24th and 27th. During the second period of rain the following heavy amounts, exceeding 5 inches in 24 hours, were registered :—

District.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
Nellore	Dugarazpatnam	15th Dec.	16·40
	Kota	„ „	13·30
	Kistnapatam	„ „	9·25
	Kavali	16th „	8·99
	Kistnapatam	„ „	8·00
	Nellore	„ „	7·45
	Pakala	„ „	6·73
	Iskapalle	„ „	5·95

The month's rainfall was much heavier than usual, as is shown by the following comparative data for the Nellore district:—

DISTRICT.	RAINFALL.			
	Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Nellore	6·97	2·07	+4·90	+237

In the south division of the east coast rain fell heavily between the 1st and the 11th and lightly between the 15th and the 18th. During the first rainy period the following amounts exceeding 5" in 24 hours were recorded:—

DISTRICT.	Station.	Date.	Rainfall during 24 hours preceding 8 A.M. of date.
			Inches.
TANJORE . . .	Tiruppundi . .	1st December .	5·29
SOUTH ARCOT . .	Manambadi . .	4th ,, .	6·25
CHINGLEPUT . .	Tiruvallur . .	,, ,, .	6·15
SOUTH ARCOT . .	Vanur . . .	,, ,, .	6·09
MADRAS . . .	Madras . . .	,, ,, .	5·25
CHINGLEPUT . .	Poonamallee . .	,, ,, .	5·20
	Saidapet . . .	,, ,, .	5·18
	Vadasemmanjeri .	,, ,, .	5·06
SOUTH ARCOT .	Vriddhachalam .	,, ,, .	5·05
	Manambadi . .	5th ,, .	6·11
	Cuddalore . .	,, ,, .	5·18
	Chidambaram . .	,, ,, .	5·16
	Manambadi . .	6th ,, .	13·14
	Bhuvanagiri . .	,, ,, .	9·86
	Vanur . . .	,, ,, .	5·85
	Chidambaram . .	,, ,, .	5·45
TANJORE . .	Neidavasal . .	,, ,, .	5·42
	Shiyali . . .	,, ,, .	5·02
SOUTH ARCOT .	Manambadi . .	7th ,, .	7·74
TANJORE . . .	Nidamangalam .	8th ,, .	5·25
SOUTH ARCOT . .	Manambadi . .	,, ,, .	5·16

The month's rainfall was nearly twice as heavy as usual, as is shown by the following comparative data for he different districts:—

DISTRICT.	RAINFALL.			
	Average actual, December 1902.	Average normal, December.	Variation of actual from normal, December 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Madras	9·18	5·28	+3·90	+ 74
Chingleput	7·44	5·05	+2·39	+ 47
North Arcot	3·00	2·63	+0·37	+ 14
South Arcot	15·26	5·20	+10·06	+193

The following shows the rainfall of the month at the extra-Indian stations. In Ceylon and at Minicoy the total rainfall was less than usual but the station of Amini Divi, in the Laccadive Islands, participated in the excess which prevailed over the west and south of the Peninsula and received much more rain than usual. In Asiatic Turkey and at the Persian stations of Teheran, Bushire and Jask the month's rainfall was less than usual, while, on the contrary, at Meshed and Muscat it was heavier. Kabul and Kashgar received no rain or snow, and at Aden and Perim the month was rainless. In the south-east Trades region the variations in the rainfall were irregular, the Seychelles obtaining about the normal amount, while at Zanzibar the month's fall was in large excess:—

STATION.	RAINFALL.			
	Average actual, December 1902.	Average normal, December.	Variation of actual from normal December 1902.	Percentage variation from normal.
	Inches.	Inches.	Inches.	
Trincomalee . . .	15·12	15·90	−0·78	− 5
Colombo . . .	6·62	6·79	−0·17	− 3
Amini Divi . . .	6·10	0·32	+5·78	+1806
Minicoy . . .	1·93	4·66	−2·73	−59
Meshed . . .	1·26	0·70	+0·56	+80
Teheran . . .	0·20	1·37	−1·17	−86
Ispahan . . .	1·47	0·54	+0·93	+172
Bushire . . .	3·03	3·24	−0·21	− 6
Jask	0·67	0·78	−0·11	−14
Muscat	0·52	0·26	+0·26	+100
Baghdad . .	0·49	1·64	−1·15	−70
Aden	0	0·37	−0·37	−100
Perim	0	0·08	−0·08	−100
Kabul	0	0·29	−0·29	−100
Kashgar . . .	0	0·19	−0·19	−100
Zanzibar . . .	10·42	2·77	+7·65	+276
Seychelles . . .	14·43	14·27	+0·16	+ 1

W. L. DALLAS.

TABLE I.—Abstract of Observations taken at 8 A.M. at 228 Stations in India, Burma, etc., in December, 1902.

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	I.—Burma Coast and Bay Islands.			*	—·034	*						*	86·0 *	+0·8	69·4 *	+1·8	77·7 *	+1·3	16·6				26·5
1	Tenasserim and Bay Islands.	Car Nicobar .	25	29·946		29·898	30·043	18th	29·865	4th	·178	79·5	85·8		76·9		81·4		8·9	88·3	9th	73·5	10th	14·8
		Port Blair .	61	29·911	—·009	29·903	30·000	18th	29·834	6th	·166	79·6	86·5	+0·6	77·1*	+0·5	81·8*	+0·6	9·4	90·5	8th	72·4	20th	18·1
		Mergui . .	96	29·876	—·026	29·903	29·975	31st	29·773	6th	·202	77·0	88·0	+0·7	73·0	+6·3	80·5	+3·5	15·0	92·1	2nd	69·4	3 days	22·7
		Tavoy . .	26	29·965	—·034	29·922	30·053	31st	29·873	6th	·180	74·5	89·3	+1·6	69·4	+4·6	79·4	+3·1	19·9	93·2	13th	65·0	18th	28·2
		Moulmein .	94	29·896	—·046	29·928	29·988	31st	29·799	10th	·189	75·5	90·1	+2·9	70·0	+3·1	80·1	+3·0	20·1	93·5	17th	65·4	11th & 31st.	28·1
2	Lower Burma .	Rangoon .	57	29·949	—·048	29·928	30·061	31st	29·873	6th	·188	71·6	87·6	+0·3	67·6	+0·3	77·6	+0·3	20·0	92·1	14th	61·8	18th & 19th.	30·3
		Bassein .	27	29·978	—·029	29·939	30·080	31st	29·893	10th	·187	69·7	85·9	+1·5	65·5	+0·4	75·7	+1·0	20·4	91·2	7th	59·8	30th	31·4
		Diamond Island	41	29·950	—·036	29·926	30·046	31st	29·868	10th	·178	76·6	82·9	—1·0	74·9	+2·7	78·9	+0·9	8·0	86·4	15th	70·2	30th	16·2
5	Arakan .	Akyab . .	20	30·001	—·030	29·964	30·080	31st	29·906	10th	·174	64·8	81·8	+0·1	60·4	—3·6	71·1	—1·8	21·4	85·4	2nd	50·6	29th	34·8
3	Central Burma	Toungoo .	183	29·833	—·026	29·965	29·928	31st	29·746	10th	·182	66·3	82·5	—1·5?	59·2	—2·9?	70·9	—2·2?	23·3	92·5	3rd	52·6	20th	39·9
	II.—Burma Inland .				—·032								82·0	—0·9	56·7	—1·5	69·4	—1·2	25·3					36·5
3	Central Burma.	Thayetmyo .	130	29·909	?	29·985	29·986	31st	29·811	10th	·175	67·7	85·4	+0·8	56·1	—2·2	70·8	—0·7	29·3	90·0	16th	48·5	20th	41·5
4	Upper Burma .	Minbu . .	165	29·884	—·034	29·999	29·986	31st	29·775	10th	·211	65·7	82·5	—1·5	60·4	?	71·5	?	22·1	85·2	3 days	51·0	20th	31·2
		Yamethin .	657	29·363	—·035	29·996	29·462	31st	29·256	10th	·206	64·3	84·9	—0·1	58·2	?	71·6	?	26·7	90·3	11th	50·7	19th	39·6
		Mandalay .	250	29·788	—·031	29·998	29·886	31st	29·695	9th	·191	65·6	83·5	+1·2?	58·9	—0·4?	71·2	+0·4?	24·6	88·0	17th	53·0	3 days	35·0
		Bhamo . .	381	29·683	—·027	30·044	29·779	31st	29·565	10th	·214	54·3	75·7	—2·6	49·9	—0·8	61·8	—1·7	23·8	77·5	1st	42·2	31st	35·3
4(a)	Burma Hill Stations.	Maymyo .		26·447			26·552	3rd	26·355	15th	·197	55·7	71·6		43·4		57·5		25·2	76·0	3rd	35·8	19th & 20th.	40·2
		Taunggyi .																						
		Lashio . .		27·222	—·033		27·302	2nd	27·102	10th	·200	53·1	74·9	+1·2	47·9	0	61·4	+0·6	27·0	78·6	4 days	42·0	4 days	36·6
	III.—Assam				—·027								73·7	—0·6	50·6	—2·7	62·2	—1·7	23·2					33·1
7	Surma . .	Silchar . .	104	29·959	—·022	30·021	30·045	31st	29·879	10th	·166	56·9	79·0	—0·7	52·4	—2·6	65·7	—1·7	26·6	85·4	1st	49·0	12th	36·4
8	Brahmaputra .	Sibsagar. .	333	29·755	—·030	30·039	29·845	31st	29·662	10th	·183	52·0	70·8	—0·7	48·3	—2·4	59·6	—1·6	22·5	71·3	3 days	42·9	31st	31·4
		Dhubri . .	115	29·952	—·030	30·030	30·037	31st	29·860	10th	·177	56·7	74·0	—0·3	52·0	—3·1	63·0	—1·7	22·0	78·1	1st	45·8	22nd	32·3
		Gauhati .	195	29·895		30·058	29·985	23rd	29·802	10th	·183	55·0	73·9		50·7		62·3		23·2	79·6	1st	44·6	29th	35·0
		Tezpur . .	252	29·831		30·060	29·933	23rd	29·731	9th	·202	53·8	71·8		51·5		61·7		20·3	76·0	2nd	47·0	29th	29·0
		Dibrugarh .	353	29·744		30·081	29·833	23rd	29·635	10th	·198	53·5	72·9		48·6		60·7		24·3	77·1	2 days	42·4	31st	34·7
	IV.—Bengal and Orissa .				—·019								76·9	—0·4	54·1	—0·9	65·6	—0·6	22·8					35·4
9	East Bengal .	Chittagong .	87	29·961	—0·15	30·001	30·042	31st	29·880	10th	·162	60·6	78·6	+0·5	55·4	—2·6	67·1	—1·1	23·2	82·4	1st	49·6	29th	32·8
		Noakhali .	43	29·990		29·982	30·074	31st	29·920	6th	·154	59·5	77·8		52·9		65·3		24·9	82·2	1st	45·1	31st	37·1
		Comilla . .	36	30·011		29·996	30·094	31st	29·935	10th	·159	59·1	78·1		52·9		65·5		25·2	83·0	1st	45·6	30th	37·4
		Sirajganj .	49	30·006		30·007	30·092	31st	29·920	10th	·172	57·6	75·3		54·2		64·8		21·1	80·0	1st	48·8	31st	31·2
		Narayanganj .	26	30·031	—·015	30·007	30·112	31st	29·946	10th	·166	60·5	76·8	—1·2	56·8	—0·5	66·8	—0·9	20·0	83·1	1st	50·2	30th & 31st.	32·9
		Barisal . .	13	30·018	?	29·977	30·096	28th	29·942	10th	·154	61·8	77·0	—0·6	55·4	—0·7	66·2	—0·7	21·6	82·3	2 days	47·7	31st	34·6
		Mymensingh .	59	29·986	?	30·001	30·069	31st	29·905	10th	·164	57·4	75·7	—0·5	53·4	—1·2	64·5	—0·9	22·3	81·1	1st	49·1	2 days	32·0
10	Deltaic Bengal.	Faridpur .	46	30·018		30·014	30·095	29th	29·949	10th	·146	59·8	75·7		53·9		64·8		21·8	80·1	1st	45·7	30th	34·4
		Jessore . .	33	30·032	—·018	30·013	30·110	31st	29·955	10th	·155	59·4	76·5	—1·1	54·0	—0·9	65·3	—1·0	22·5	81·6	2 days	43·1	31st	38·5
		Calcutta .	21	30·060	—·013	30·028	30·141	31st	29·973	10th	·168	61·1	77·4	+0·9	56·1	+0·1	66·8	+0·5	21·3	81·1	19th	48·6	30th	35·5
		Sauger Island	25	30·048	—·018	30·018	30·124	31st	29·964	10th	·160	63·2	77·0	+0·7	58·9	—0·2	68·0	+0·3	18·1	82·0	19th	53·4	30th	28·6
		Krishnagar .	47	30·044?		30·043?	30·130	31st	29·954	10th	·176	61·1	77·9		52·0		65·0		25·9	82·6	19th	43·9	29th	38·7
		Midnapore .	149	29·926		30·031	30·004	31st	29·854	10th	·150	61·1	79·4		56·0		67·7		23·4	87·8	19th	49·6	25th & 31st.	38·2

I.

in India, Burma, etc., in December, 1902.

WIND DIRECTION. Number of Winds from									Wind resultant.	WIND VELOCITY.				HYGROMETRY, 8 A.M.		Mean cloud amount.	RAINFALL.									STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.	Number of District.
Calms.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st December 1902.	Normal rainfall for period, 1st to 31st December.	Variation from normal of period, 1st to 31st December 1902.	Heaviest rainfall during month.			
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				1·52	0·99	+0·44					I.—Burma Coast and Bay Islands.		
1	7	9				1	1		N 21° E	5·1	5·1			84*	·838*	6·4*	5			2·32			2·32			1·40	Car Nicobar	Tenasserim and Bay Islands.	1
	6	14		2	1		3	5	N 16° E	5·7	6·3	7·2	− 13	86	·871	4·0	9			6·31	6·62	− 0·31	6·31	6·62	−0·31	1·29	Port Blair.		
26	3							2	N 18° W	1·8	1·6	1·8	− 11	87	·798	4·0	4	0·70	+3·30	1·77	0·38	+ 1·39	1·77	0·38	+1·39	0·60	Mergui.		
31									Calm	1·1				91	·784	1·1	0	0·20	−0·20	0·04	0·06	− 0·02	0·04	0·06	−0·02	0·01	Tavoy.		
18	3	7	1		2				N 45° E	1·8	2·0	2·6	− 23	83	·735	1·6	1	0·20	+0·80	0·83	0·05	+ 0·78	0·83	0·05	+0·78	0·80	Moulmein.		
9	12	6	1				1	2	N 9° E	2·8	2·4	4·9	− 51	83	·651	2·7	2	0·40	+1·60	1·23	0·09	+ 1·14	1·23	0·09	+1·14	0·90	Rangoon.	Lower Burma.	2
6	5	6	6	1			3	4	N 24° E	4·1		2·7	+ 52	83	·613	2·1	2	0·50	+1·50	0·21	0·13	+ 0·08	0·21	0·13	+0·08	0·11	Bassein.		
	9	14	6					2	N 36°E	12·6	12·6	7·5	+ 68	71	·661	3·0	1	0·90	+0·10	1·57	0·70	+ 0·87	1·57	0·70	+0·87	1·50	Diamond Island.		
	21	9						1	N 11° E	2·5	2·4	2·2	+ 9	88	·545	0·4	0	0·70	−0·70	0	0·70	− 0·70	0	0·70	−0·70	0	Akyab.	Arakan.	5
7	5		1	1			2	15	N 66° W	1·7	1·7	2·3	− 26	88	·578	1·4	2	0·40	+1·60	0·94	0·17	+ 0·77	0·94	0·17	+0·77	0·81	Toungoo.	Central Burma.	3
																				0·09	0·40	−0·31					II.—Burma Inland.		
	10	10	4			1	2	4	N 16° E	3·3		3·2	+ 3	73	·498	2·0	1	0·40	+0·60	0·19	0·15	+ 0·04	0·19	0·15	+ 0·04	0·17	Thayetmyo.	Central Burma.	3
2	1						3	25	N 47° W	5·4	6·4			75	·479	1·0	0	0·30	−0·30	0·03	0·63	− 0·60	0·03	0·63	− 0·60	0·03	Minbu.	Upper Burma.	4
10	14							7	N 15° W	5·3	5·6			79	·483	0·9	1	0·70	+0·30	0·15	0·49	− 0·34	0·15	0·49	− 0·34	0·13	Yamethin.		
	11	15	2	1				2	N 31° E	3·2	3·2			82	·517	1·3	0	0·70	−0·70	0·05	0·29	− 0·24	0·05	0·29	− 0·24	0·05	Mandalay.		
19	1	5	4	1	1				N 71° E.	1·3	1·5			97	·414	2·5	0	1·00	−1·00	0·04	0·42	− 0·38	0·04	0·42	− 0·38	0·04	Bhamo.		
31									Calm	1·2				86	·387	5·0	0	0·80	−0·80	0·03	0·45	− 0·42	0·03	0·45	− 0·42	0·03	Maymyo.	Burma Hill Stations.	4(a)
																											Taunggyi.		
	3	6	4	5	4	4	3	2	N 87° E	2·5				97	·393	7·1	1			0·80	0·66	+ 0·14	0·80	0·66	+ 0·14	0·74	Lashio.		
																				0	0·42	−0·42					III.—Assam.		
25			3	3					S 68° E	0·9	1·5	1·9	− 21	90	·424	2·7	0	0·80	−0·80	0	0·46	−0·46	0	0·46	− 0·46	0	Silchar.	Surma.	7
28	2	1							N 15° E	1·5	1·4	1·6	− 13	100	·392	5·3	0	1·90	−1·90	0	0·57	− 0·57	0	0·57	− 0·57	0	Sibsagar.	Brahmaputra.	9
3		16	12						N 64° E	2·9	3·4	4·5	− 24	92	·427	0·5	0	0·20	−0·20	0	0·07	− 0·07	0	0·07	− 0·07	0	Dhubri.		
17	5	6	1	1	1				N 39° E	1·7	1·9			99	·431	0·5	0	0·70	−0·70	0	0·24	− 0·24	0	0·24	− 0·24	0	Gauhati.		
13	1	5	11	1					N 76° E	1·5	1·6			94	·391	1·9	0	1·00	−1·00	0	0·43	−0·43	0	0·43	− 0·43	0	Tezpur.		
	8	12	5	4	1	1			N 52° E	0·8	0·8			93	·377	2·4	0	1·40	−1·40	0·02	0·76	−0·74	0·02	0·76	− 0·74	0·02	Dibrugarh.		
																				0·41	0·22	+0·19					IV.—Bengal and Orissa.		
	10	19		1				1	N 29° E	2·9	2·9	3·2	− 9	89	·471	1·58	0	0·81	−0·81	0·02	0·85	− 0·83	0·02	0·85	− 0·83	0·02	Chittagong.	East Bengal.	6
	14	5	3		1		1	7	N 30° E	2·0	2·2			90	·461	2·5	2	0·48	+1·52	0·21	0·38	− 0·17	0·21	0·38	− 0·17	0·11	Noakhali.		
25	4				1			1	N 14° W	1·1	1·0			89	·448	1·5	0	0·45	−0·45	0·02	0·22	− 0·20	0·02	0·22	− 0·20	0·01	Comilla.		
21	4		1			2	3		N 27° W	1·2	1·3			85	·427	2·1	0	0·39	−0·39	0	0·11	− 0·11	0	0·11	− 0·11	0	Sirajganj.		
13	7	1			1		1	8	N 27° W	2·0		1·9	+ 5	88	·467	4·1†	0	0·44	−0·44	0·03	0·16	− 0·13	0·03	0·16	− 0·13	0·03	Narayanganj.		
9	2	2	1	4	3		1	2	S 72° E	1·5				87	·491	2·6	2	0·52	+1·48	0·27	0·60	− 0·33	0·27	0·60	− 0·33	0·14	Barisal.‖		
29				1				1	Calm	0·8	0·8			91	·430	?	0	0·26	−0·26	0	0·05	− 0·05	0	0·05	− 0·05	0	Mymensingh.		
7	5	1			1	2	1	14	N 43° W	1·8	1·5			86	·445	1·9	0	0·26	−0·26	0·02	0·08	− 0·06	0·02	0·08	− 0·06	0·02	Faridpur.	Deltaic Bengal	10
24	4		1					2	N 5° W	1·2		1·7	− 29	80	·412	2·7*	1	0·35	+0·65	0·12	0·18	− 0·06	0·12	0·18	− 0·06	0·12	Jessore.		
8	10	4			1			8	N 9° W	3·3		3·0	+ 10	77	·419	2·6	1	0·38	+0·62	0·66	0·22	+ 0·44	0·66	0·22	+ 0·44	0·58	Calcutta.		
	11	16	1				1	2	N 23° E	7·6		6·0	+ 27	83	·485	3·6*	2	0·58	+1·42	1·50	0·33	+ 1·17	1·50	0·33	+ 1·17	1·25	Sagor Island.		
3	6	1	1			1	7	12	N 45° W	2·0	2·3			75	·407	2·5	0	0·16	−0·16	0·05	0·10	− 0·05	0·05	0·10	− 0·05	0·05	Krishnagar.		
7	16					1		7	N 17° W	2·8	2·5			68	·369	2·8	1	0·28	+0·72	0·80	0·20	+ 0·60	0·80	0·20	+ 0·60	0·73	Midnapore.		

* Mean of 30 days. † Mean of 21 days. ‡ Wind variable 11 and wind observations for 30 days. § Mean of 26 days. ‖ Wind observations of 24 days.

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-ometer above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
11	Central Bengal	Bankura	298	29·762		30·029	29·840	31st	29·678	10th	·162	61·1	78·0		55·4		66·8		22·6	85·1	19th	48·0	31st	37·1
		Raniganj	334	29·735		30·041	29·820	31st	29·639	10th	·181	57·8	78·1		53·3		65·7		24·8	84·0	19th	47·2	25th	36·8
		Burdwan	99	29·977	−0·25	30·030	30·062	31st	29·883	10th	·179	59·9	79·3	+1·1	55·6	−0·4	67·5	+0·4	23·7	85·4	19th	46·8	31st	38·6
		Naya Dumka	489	29·575?		30·058?	29·657	31st	29·482	10th	·175	57·2	75·2		51·1		63·2		24·1	80·8	19th	44·4	31st	36·4
		Berhampore	67	30·014	−0·16	30·033	30·102	31st	29·928	10th	·174	59·6	77·7	+1·2	55·6	+0·3	66·7	+0·8	22·1	81·2	1st	49·1	31st	32·1
		Rampur Boalia.	70	30·006		30·029	30·081	31st	29·919	10th	·162	58·5	75·4		53·4		64·4		22·0	79·3	1st	47·1	30th	32·2
		Malda	72	29·978		30·007	30·073	31st	29·886	10th	·187	57·7	74·6		51·1		62·9		23·5	81·0	5th	43·5	30th	37·5
		Begra	61	29·994	−·019	30·012	30·070	31st	29·901	10th	·169	56·4	75·6	−1·3	52·1	−1·9	63·9	−1·6	23·5	79·8	1st	46·2	29th	33·6
12	North Bengal	Dinajpur	123	29·947	−·026	30·033	30·026	31st	29·861	10th	·165	54·6	75·6	−1·3	49·2	−2·2	62·4	−1·8	26·4	79·3	2 days	41·5	22nd	37·8
		Rangpur	123	29·955		30·041	30·037	31st	29·855	10th	·182	57·9	74·7		51·0		62·9		23·7	79·1	1st	41·8	22nd	37·3
		Jalpaiguri	284	29·779	−·025	30·040	29·859	31st	29·680	10th	·179	55·2	74·2	−1·0	50·5	−2·4	62·4	−1·7	23·7	78·4	2 days	45·1	29th	33·3
		Cooch Behar	156	29·918		30·041	29·998	31st	29·821	10th	·177	54·6	75·0		51·2		63·1		23·8	79·3	1st & 2nd.	46·3	29th	33·0
17	North Bihar	Purnea	125	29·953	−·020	30·043	30·042	31st	29·852	10th	·190	51·8	74·6	−1·2	47·1	−2·6	60·9	−1·9	27·5	79·2	2 days	38·5	30th	40·7
14	Orissa	Balasore	48	30·051	−·016	30·046	30·137	31st	29·967	10th	·170	61·5	79·4	−0·6	55·2	+0·2	67·3	−0·2	24·2	87·4	19th	47·4	28th	40·0
		False Point	21	30·052	−·020	30·016	30·146	28th	29·975	10th	·171	64·9	77·7	−0·2	57·2	−0·1	67·4	−0·2	20·5	83·9	17th & 19th.	47·4	28th	36·5
		Cuttack	80	30·006	−·006	30·032	30·105	28th	29·925	10th	·180	63·7	80·6	−1·5	60·1	+1·4	70·4	−0·1	20·5	89·9	19th	51·6	28th.	38·3
		Puri	24	30·057		30·020	30·163	28th	29·981	10th	·182	65·4	78·9		62·4		70·7		16·5	84·7	3rd	54·6	29th	30·1
	V.—Gangetic Plain and Chota Nagpur.				−·019								74·9	−0·4	48·6	−1·5	61·8	−1·0	26·2					40·1
18	Chota Nagpur	Hazaribagh.	2,007	28·009	−·019	30·059	28·107	27th	27·916	10th	·191	56·9	72·2	0	50·6	+0·1	61·4	+0·1	21·6	79·1	19th	44·0	25th	35·1
		Ranchi	2,128	27·878	−·030	30·050	27·957	28th	27·804	10th	·153	56·9	72·6	−1·1	51·8	+1·2	62·2	+0·1	20·8	79·7	19th	44·0	27th	35·7
		Daltonganj	730?	29·372		30·111	29·476	28th	29·280	10th	·196	53·5	75·5		45·3		60·4		30·2	84·1	18th	36·2	28th	47·9
		Purulia		29·232		30·039	29·310	31st	29·161	10th	·149	59·5	77·0		53·3		65·2		23·7	85·5	19th	45·2	25th	40·3
		Chaibassa	760	29·298	−·013	30·053	29·374	28th	29·217	10th	·157	57·5	77·4	−2·3	53·9	+1·5	65·7	−0·4	23·5	85·7	19th	36·4	25th	39·3
16	South Bihar	Gaya	375	29·709	−·019	30·063	29·801	28th	29·622	10th	·179	56·7	76·0	−0·2	50·4	−1·1	63·2	−0·7	25·6	82·3	19th	44·0	2 days	38·3
		Dehri	351	29·730		30·061	29·837	28th	29·534	10th	·203	56·9	75·8		53·1		64·4		22·7	82·7	19th	46·3	29th	36·4
		Patna	183	29·902	−·030	30·050	29·990	28th	29·820	17th	·170	57·2	74·4	+0·2	50·8	−0·8	62·6	−0·3	23·6	79·2	1st	43·3	29th	35·9
		Arrah	190	29·908		30·064	30·008	28th	29·822	5th	·186	54·1	74·8		48·2		61·6		26·6	79·6	19th	42·0	24th	37·6
		Buxar	239	29·850		30·062	29·951	28th	29·759	5th & 10th	·195	56·5	75·6		49·8		62·7		25·8	80·5	1st	42·3	26th	38·2
17	North Bihar	Bhagalpur	160	29·925		30·047	30·009	31st	29·820	10th	·189	57·6	75·1		50·3		62·7		24·8	79·9	1st	42·7	30th	37·2
		Darbhanga	166	29·907	−·024	30·039	29·999	31st	29·816	10th	·183	54·8	73·4	−1·1	51·5	−2·2	62·5	−1·7	21·9	79·7	1st	45·3	30th	34·4
		Muzaffarpur	178	29·910		30·055	30·008	31st	29·814	10th	·194	55·0	72·8		48·4		60·6		24·4	78·0	1st	42·3	23rd & 30th.	35·7
		Motihari	224	29·864?		30·060?	29·951	31st	29·771	17th	·180	56·9	74·1		46·2		60·2		27·9	79·3	1st & 2nd.	38·8	23rd	40·5
		Chapra	181	29·891		30·040?	29·983	28th	29·810	10th	·173	52·5	74·8		48·5		61·7		26·3	79·6	1st	42·8	23rd	36·8
15	United Provinces, (East).	Benares	267	29·817	−·017	30·060	29·911	28th	29·718	10th	·193	54·5	75·0	0	45·9	−2·3	60·5	−1·2	29·1	82·1	18th	38·0	29th	44·1
		Allahabad	309	29·795	?	30·083	29·967	28th	29·704	5th	·203	55·3	75·6	−0·1	45·3	−2·5	60·5	−1·3	30·3	83·6	18th	36·4	28th	47·2
23	United Provinces, (East Sub-montane).	Gorakhpur	257	29·816	−·014	30·030	29·901	28th	29·729	5th	·172	52·9	73·3	−0·9	47·4	−3·0	60·4	−2·0	25·9	78·4	1st	42·1	30th	36·3
19	South Oudh	Lucknow	368	29·714	−·008	30·070	29·826	28th	29·627	6th	·199	51·6	76·3	+0·6	41·8	−1·4	60·6	−0·4	31·5	83·3	18th	35·1	23rd	48·2
20	North Oudh	Bahraich	401	29·652	−·025	30·046	29·719	28th	29·567	5th	·182	51·3	74·9	−0·1	45·6	−2·4	60·3	−1·3	29·3	79·6	2nd, 3rd & 19th.	39·1	25th	40·5
21	United Provinces (Central).	Cawnpore	416	29·664	−·014	30·069	29·774	28th	29·566	6th	·208	51·8	75·8	−0·5	44·6	−3·0	60·2	−1·8	31·2	83·5	18th	35·0	27th	48·5
		Mainpuri	516	29·561	−·009	30·077	29·658	28th	29·452	5th	·206	51·2	75·0	−0·1	44·7	−3·0	59·7	−1·6	30·7	81·3	18th	34·0	24th	47·3

‡ Mean of 28 days. § Mean of 30 days.

I—*continued.*

in India, Burma, etc., in December 1902—continued.

WIND DIRECTION. Number of Winds from									Wind Resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.								Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st December 1902.	Normal rainfall for period, 1st to 31st December	Variation from normal of period 1st to 31st December 1902.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
							2		W	1·0	1·1			64	·351	2·5	1	0·34	+ 0·66	0·11	0·13	−0·02	0·11	0·13	− 0·02	0·11	Bankura .	Central Bengal	11
29								4	N 16° W	1·0				68	·330	1·4	0	0·26	−0·26	0·03	0·08	− 0·05	0·03	0·08	− 0·05	0·03	Raniganj .		
23	3	1					2	5	N 29° W	1·6		1·9	−16	72	·375	2·8	0	0·23	− 0·23	0·08	0·11	− 0·03	0·08	0·11	− 0·03	0·08	Burdwan .		
18	5	1						1	N 45° W	1·3	1·4			72	·343	2·2	0	0·33	− 0·33	0	0·16	− 0·16	0	0·16	− 0·16	0	Naya Dumka		
29	1					1	3	5	N 45° W	1·0	1·0	1·6	−38	79	·404	2·5	0	0·34	− 0·34	0	0·11	− 0·11	0	0·11	− 0·11	0	Berhampur.		
18	3		1						N 27° E	0·6	0·6			80	·396	1·7	0	0·22	− 0·22	0	0·06	− 0·06	0	0·06	− 0·06	0	Rampur Boalia.		
29	1	1							N 49° W	0·7	0·7			82	·395	1·5	0	0·19	− 0·19	0	0·24	− 0·24	0	0·24	− 0·24	0	Malda .		
	4	2		1		1	7	16	N	2·0	2·4			84	·390	1·1*	0	0·23	− 0·23	0	0·02	− 0·02	0	0·02	−0·02	0	Bogra .		
13	18								N 30° W	1·2	1·1			88	·378	0·9†	0	0·32	− 0·32	0	0.04	− 0·04	0	0·04	−0·04	0	Dinajpur .	North Bengal .	12
	8	4	2	1		1	8	7	N 69° E	0·8	0·9			91	·438	1·8	0	0·23	− 0·23	0	0·09	− 0·09	0	0·09	−0·09	0	Rangpur .		
22		4	5						N 10° E	0·3	0·4			89	·388	0·9‡	0	0·23	− 0·23	0	0·04	− 0·04	0	0·04	−0·04	0	Jalpaiguri .		
	12	10	2				1	6	N 82° E	0·3	0·9			90	·387	0·7	0	0·27	− 0·27	0	0·08	− 0·08	0	0·08	− 0·08	0	Cooch Behar		
22		4	3	2					N 86° W	2·2	2·0	1·3	+54	90	·382	0·6§	0	0·23	− 0·23	0	0·10	− 0·10	0	0·10	− 0·10	0	Purnea .	North Bihar .	17
14						5	5	7	N 21° W	1·6				70	·386	2·3	2	0·52	+ 1·48	1·45	0·18	+ 1·27	1·45	0·18	+ 1·27	1·18	Balasore .	Orissa . .	14
4	14							13	N 22° W	4·8	4·6	6·3	−27	82	·514	3·4	2	0·68	+ 1·32	1·84	0·69	+ 1·15	1·84	0·69	+ 1·15	0·98	False Point.		
5	11	1		1			1	12	S 63° W	1·2		1·3	− 8	77	·465	3·3	2	0·58	+ 1·42	2·35	0·27	+ 2·08	2·35	0·27	+ 2·08	2·11	Cuttack.		
21		2	2			3	3		N 1° E	8·4	7·9			80	·512	2·5	3	0·61	+ 2·39	2·87	0·65	+ 2·22	2·87	0·65	+ 2·22	1·60	Puri.		
2	21	3		1	1		1	2																					
																				0·03	0·18	−0·15					V.—Gangetic Plain and Chota Nagpur.		
7	2		1	1			10	10	N 62° W	6·5	5·8	4·6	+26	53	·255	2·5	0	0·52	− 0·52	0	0·20	− 0·20	0	0·20	− 0·20	0	Hazaribagh.	Chota Nagpur	15
10	1	1				1	2	16	N 47° W	3·3	3·8			55	·266	2·2	1	0·48	+ 0·52	0·10	0·09	+ 0·01	0·10	0·09	+ 0·01	0·10	Ranchi.		
31									Calm	1·2	1·5			76	·320	1·7	0	0·55	−0·55	0	0·29	− 0·29	0	0·29	− 0·29	0	Daltonganj .		
16							9	6	N 73° W	0·8	1·0			61	·319	1·9	1	0·29	+0·71	0·11	0·18	−0·07	0·11	0·18	− 0·07	0·11	Purulia.		
24						3	3	1	S 81° W	0·6	0·5			77	·370	2·6	1	0·65	+ 0·35	0·38	0·10	+ 0·28	0·38	0·10	+ 0·28	0·38	Chaibassa.		
14			1	2	6	6	2		S 18° W	4·5	4·0	1·3	+208	70	·328	2·2	0	0·35	− 0·35	0	0·17	− 0·17	0	0·17	− 0·17	0	Gaya .	South Bihar .	16
				9	21	1			S 34° W	3·8	3·3			72	·338	2·1	0	0·44	− 0·44	0	0·32	− 0·32	0	0·32	− 0·32	0	Dehri.		
		1				14	11	5	S 76° W	3·0	3·4	1·7	+100	72	·345	1·2	0	0·35	− 0·35	0	0·10	− 0·10	0	0·10	− 0·10	0	Patna.		
17						2	6	6	N 76° W	0·9	1·0			76	·321	1·3	0	0·35	− 0·35	0	0·13	− 0·13	0	0·13	− 0·13	0	Arrah.		
3				3	8	13	4		S 75° W	4·8	4·5			67	·313	1·4	0	0·45	− 0·45	0	0·20	− 0·20	0	0·20	− 0·20	0	Buxar.		
17	1		1	1		3	6	2	S 83° W	2·1	2·0			73	·357	0·7	0	0·26	− 0·26	0	0·07	− 0·07	0	0·07	− 0·07	0	Bhagalpur .	North Bihar .	17
20	1					2	6	2	N 84° W	1·4		2·0	−30	87	·377	0·9	0	0·23	− 0·23	0	0·07	− 0·07	0	0·07	− 0·07	0	Darbhanga.		
25		1				1	3	1	N 76° W	1·6				88	·383	0·4	0	0·19	− 0·19	0	0·07	− 0·07	0	0.07	− 0·07	0	Muzaffarpur		
9		1	4	3	1	1	6	6	N 76° W	2·2	2·1			83	·389	0·7	0	0·47	− 0·47	0	0·14	− 0·14	0	0·14	− 0·14	0	Motihari.		
21					2	5	3		S 49° W	1·7	1·5			65	·339	1·3	0	0·29	− 0·29	0	0·09	− 0·09	0	0·09	− 0·09	0	Chapra.		
22						8	1		S 49° W	0·8	0·9	2·4	−63	74	·323	1·3	0	0·40	−0·40	0	0·21	− 0·21	0	0·21	− 0·21	0	Benares .	United Provinces (East).	18
12	1				1	2	9	6	N 79° W	2·8	3·2	2·5	+28	77	·319	1·7	0	0·50	−0·50	0	0·24	− 0·24	0	0·24	− 0·24	0	Allahabad.		
11	2	1	1		3	6	4	3	S 76° W	1·0		0·9	+11	83	·336	1·9	0	0·40	− 0·40	0	0·14	− 0·14	0	0·14	− 0·14	0	Gorakhpur	United Provinces (East Sub-Montane).	23
20	2					1	4	4	N 61° W	0·9	1·0	1·6	−38	69	·265	0·6	0	0·80	− 0·80	0	0·38	− 0·38	0	0·38	− 0·38	0	Lucknow .	South Oudh .	19
19		1				1	3	7	N 58° W	1·0	0·9			76	·291	0·7	0	0·70	−0·70	0	0·34	− 0·34	0	0·34	− 0·34	0	Bahraich .	North Oudh .	20
10	1	1			1	5	8	5	N 87° W	2·7				69	·272	0·8	0	0·60	−0·60	0	0·17	− 0·17	0	0·17	− 0·17	0	Cawnpore .	United Provinces (Central).	21
24	1						6		N 81° W	0·4	0·4			62	·236	1·9	0	0·60	− 0·60	0	0·34	− 0·34	0	0·34	− 0·34	0	Mainpuri.		

*Mean of 19 days.

† Mean of 29 days.

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of barometer cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	VI.—Upper Sub-Himalayas.				−·014								71·2	−0·6	41·3	−1·9	56·3	−1·3	30·0					43·4
24	United Provinces (West Sub-montane).	Bareilly	568	29·480	−·021	30·060	29·575	27th	29·393	20th	·182	48·3	72·7	−0·1	33·9	2·1	53·3	−1·1	28·8	78·8	16th & 19th.	37·7	23rd & 26th.	41·1
		Dehra Dun	2,233	27·767	−·026	30·094	27·856	2nd	27·668	20th	·188	46·5	69·3	+0·6	42·8	−2·8	56·1	−1·1	26·5	74·5	1st & 17th	37·5	4 days	37·0
		Roorkee	899	29·143	−·008	30·089	29·229	2nd	29·046	20th	·183	43·2	72·3	−0·1	38·4	−5·1?	55·4	−2·6?	33·9	77·8	1st, 16th 18th	30·7	25th	47·1
22	United Provinces West.	Meerut	738	29·305	−·022	30·073	29·398	28th	29·207	5th	·191	46·3	73·7	+0·8	42·4	−2·3	58·1	−0·8	31·3	79·0	17th	34·1	25th	44·9
26	South-East Punjab.	Delhi	718	29·349	−·008	30·089	29·444	28th	29·242	5th	·202	50·0	71·9	−1·8	47·9	−1·0	59·9	−1·4	24·0	77·2	5th	40·2	27th	37·0
28	Central Punjab.	Lahore	702	29·367	−·006	30·110	29·461	28th	29·261	10th	·200	41·9	72·7	−0·5	39·3	−1·0	56·0	−0·8	33·4	80·3	2nd	32·5	26th	47·8
27	South Punjab	Sirsa	662	29·423	P	30·111	29·528	28th	29·313	5th	·215	45·9	72·7	−2·2	41·2	−1·5	57·0	−1·9	31·5	77·7	1st	33·0	26th	44·7
		Patiala	818	29·236		30·092	29·333	28th	29·136	6th	·197	46·3	71·1		40·8		56·0		30·3	75·8	1st & 18th	32·0	24th	43·8
29	Punjab Sub-montane.	Ludhiana	812	29·238	−·007	30·091	29·334	28th	29·133	5th	·201	44·7	69·1	−1·9	41·7	−2·3	55·4	−2·1	27·4	74·6	1st	34·0	5 days	40·6
		Sialkot	830	29·228	P	30·108	29·321	28th	29·124	5th	·197	43·4	69·5	−0·6	40·6	−1·9	55·1	−1·3	28·9	76·5	1st & 7th.	33·0	26th	43·5
		Umballa	892	29·155	−·005	30·095	29·244	28th	29·062	5th	·182	44·1	72·7	+0·6						78·0	1st, 2nd & 18th			
31	North Punjab	Rawalpindi	1,674	28·362	−·024	30·160	28·449	28th	28·269	9th	·180	38·8	68·3	+0·7	34·8	−2·3	51·6	−0·8	33·5	76·4	2nd & 3rd.	27·0	26th.	49·4
	VII.—N. W. Frontier Province, Indus Valley and North-West Rajputana.				−·021								76·1	+0·6	45·4	−1·2	60·8	−0·3	30·7					46·2
31	North Punjab	Peshawar	1,110	28·969	−·028	30·165	29·052	28th	28·863	9th	·189	40·8	68·4	+0·9	36·6	−2·4	52·5	−0·8	31·8	77·1	2nd & 3rd,	28·4	25th	48·7
32	West Punjab	Khushab	612	29·489	P	30·132	29·569	28th	29·367	9th & 10th.	·182	41·0	72·8	+1·1	39·2	−2·7	56·0	−0·8	33·6	81·2	3rd, 3rd	30·9	22nd	50·3
		Montgomery	558	29·525	−·015	30·101	29·629	28th	29·426	5th & 9th,	·203	46·4	72·5	−0·3	39·9	−3·1	56·3	−1·7	32·7	78·0	2nd & 3rd.	32·5	26th & 27th.	45·5
		D. I. Khan	550	29·568	−·024	30·109	29·601	23rd	29·398	9th	·203	41·4	72·6	+0·1	38·1‖	−1·7‖	55·1‖	−0·8‖	34·5	82·3	3rd 3rd	31·0	24th & 25th.	51·3
		Moeltan	420	29·676	−·021	30·103	29·788	27th	29·543	9th	·240	47·3	74·6	+0·7	43·7	−0·7	59·2	0	30·5	81·8	2nd & 3rd,	37·0	26th	44·8
47	Sind	Jacobabad	186	29·910	−·027	30·073	30·017	27th	29·791	6th & 10th.	·226	48·7	77·9	+1·2	43·6	−0·4	60·8	+0·4	31·3	85·0	2nd	35·5	24th	49·5
		Hyderabad	96	30·062	−·029	30·058	30·123	27th	29·865	10th	·258	58·9	80·1	+1·0	52·8	+0·5	66·5	+0·8	27·3	88·1	5th	44·5	23rd	43·6
		Kurrachee	30	30·079	−·015	30·061	30·195	27th	29·924	10th	·271	62·5	82·6	+2·3	57·9	+2·0	70·3	+2·2	24·7	88·4	2nd	49·7	27th	38·7
51	West Rajputana	Bikaner	771	29·311	−·008	30·109	29·415	27th	29·194	10th	·221	51·8	74·8	−0·5	48·1	−3·2	61·5	−1·9	26·7	81·2	16th	40·1	27th	41·1
		Pachpadra	380	29·714	P	30·082	29·836	27th	29·599	11th	·237	53·6	81·1	−0·4	46·3	−0·1	63·7	−0·3	34·8	87·6	16th	34·0	27th	53·6
		Jodhpur	782	29·285		30·098	29·412	27th	29·165	6th	·247	58·1	79·6		53·4		66·5		26·2	86·6	16th	45·2	21st	41·4
	VIII.—East Rajputana, Central India and Gujarat.				−·022								79·3	−1·4	52·8	+0·7	66·1	−0·4	26·4					43·4
50	East Rajputana	Jaipur	1,431	28·634	−·014	30·113	28·736	28th	28·543	5th	·193	55·0	77·0	−0·7	48·3	−0·8	62·7	−0·8	28·7	81·7	8th & 17th,	37·5	27th	44·2
		Bharatpur	585	29·496		30·089	29·591	30th	29·394	5th	·197	51·1	76·3		45·6		61·0		30·7	80·4	4 days	38·2	29th	42·2
		Kotah	819	29·249		30·122	29·361	27th	29·159	10th	·202	56·3	78·3		51·5		64·9		26·8	90·0	12th	43·0	27th	47·0
		Sambhar	1,254	28·812	−·005	30·123	28·923	28th	28·718	10th	·205	48·6	76·3	+0·3	44·5	−1·8?	60·4	−0·8?	31·8	82·9	17th	34·0	28th	48·9
		Ajmer	1,611	28·449	−·022	30·138	28·559	27th	28·345	6th	·214	49·2	74·3	−2·0	47·2	?	60·8	?	27·1	81·4	17th	36·4	27th	45·0
		Udaipur	1,925	28·129		30·117	28·246	28th	28·042	10th	·204	54·8	75·5		47·9		61·7		27·6	83·5	17th	35·2	27th & 28th,	48·3
		Deesa	466	29·583	−·029	30·030	29·708	28th	29·477	11th	·231	61·6	85·2	−0·2	54·5	+1·8	69·9	+0·8	30·7	90·1	8th	43·6	25th	46·5
46	Kathiawar and Cutch.	Bhuj	395	29·666	−·019	30·035	29·783	27th	29·541	11th	·242	63·7	84·2	−1·0	56·2	+0·1	68·7	−0·5	25·0	87·3	15th	45·0	26th	42·3
		Jamnagar	61	30·017		30·024	30·130	28th	29·904	6th	·226	61·8	82·1		55·9		69·0		26·2	88·0	8th	46·2	24th & 26th.	41·7
		Rajkot	429	29·611	−·027	30·014	29·714	27th	29·484	10th	·230	62·2	82·6	−2·8	53·9	+1·0?	68·3	−0·9?	28·7	86·9	4 days	40·6	24th & 27th.	46·3
		Veraval	18	30·009	−·037	29·969	30·111	28th	29·870	6th	·241	68·4	83·8	−0·3	63·7	+1·7	73·7	+0·7	20·1	89·6	2nd	53·8	20th	35·8
		Dwarka	37	30·023		30·007	30·138	27th	29·875	11th	·263	68·4	81·3		60·8		71·1		20·5	86·9	4th	52·1	26th	34·8
		Bhavnagar Para	55	30·006	−·041	30·009	30·134	28th	29·850	12th	·284	64·5	83·0	−2·0	58·7§	+0·6§	71·0§	−0·7	24·3	88·0	3rd, 18th & 19th.	47·2	24th	40·9
49	Central India	Nowgong	757	29·321	−·017	30·094	29·434	28th	29·217	5th	·217	50·9	73·4	−1·8	45·8	−0·6	59·6	−1·2	27·6	80·5	12th	35·0	27th, 28th & 29th.	45·5
		Indore	1,823	28·215	−·011	30·071	28·324	28th	28·123	6th & 10th.	·201	58·7	76·1	−3·2	50·9	+1·6	63·5	−0·8	25·2	84·3	18th & 19th.	36·6	24th & 25th.	47·7
		Neemuch	1,630	28·428	−·010	30·110	28·541	28th	28·333	6th	·198	54·8	77·0	−1·4	48·9	−0·6	63·0	−1·0	28·1	85·0	18th	37·1	28th	47·9
45	Gujarat	Surat	39	29·993	−·034	29·975	30·111	28th	29·852	6th	·259	66·9	86·0	−1·4	61·6	+3·9	73·8	+1·3	24·4	91·1	7th	53·1	31st	38·0
		Ahmedabad	163	29·892	−·027	30·012	30·024	28th	29·772	6 h	·252	65·5	84·3	−1·6	60·0	−0·1	72·2	−0·9	24·3	88·7	16th, 17th & 18th	49·2	25th & 26th.	39·5

‖ Mean of 21 days. § Mean of 28 days.

I—*continued.*

in India, Burma, etc., in December, 1902—continued.

WIND DIRECTION. Number of Winds from										WIND VELOCITY.				HYGROMETRY, S.A.M.			RAINFALL.														
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind resultant.	Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st December 1902.	Normal rainfall for period 1st to 31st December.	Variation from normal of period 1st to 31st December 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																				0	0·57	−0·57					VI.—Upper Sub-Himalayas		
6	2					4	10	9	N 73° W	0·6	0·6	2·2	−73	80	·274	0·1	0	0·64	−0·64	0	0·33	−0·33	0	0·33	−0·33	0	Bareilly	United Provinces (West Sub-Montane).	24
29	1						1		N 45° W	0·4		1·7	−76	70	·227	1·9	0	1·40	−1·40	0	0·80	−0·80	0	0·80	−0·80	0	Dehra Dun.		
20		1	1	2		1		6	N 34° W	2·0		1·3	+54	82	·234	0·9	0	1·30	−1·30	0	0·61	−0·61	0	0·61	−0·61	0	Roorkee.		
25							6		W	1·2	1·2	1·6	−25	65	·211	0·7	0	0·90	−0·90	0	0·43	−0·48	0	0·48	−0·48	0	Meerut .	United Provinces West.	22
8							18	5	N 82° W	2·7	2·5	2·7	− 7	46	·172	1·0	0	1·10	−1·10	0	0·53	−0·53	0	0·53	−0·53	0	Delhi .	South-East Punjab.	26
31									Calm	1·0		1·5	−33	81	·218	1·6	0	0·90	−0·90	0	0·38	−0·38	0	0·38	−0·38	0	Lahore .	Central Punjab	28
7	4	3	4	1	1	5	5	1	N 56° W	2·5	2·3	2·2	+ 5	67	·211	0·4	0	0·80	−0·80	0	0·31	−0·31	0	0·21	−0·31	0	Sirsa .	South Punjab.	27
11	5	1	2	2			4	6	N 21° W	3·7	3·7			70	·224	1·4	0			0			0			0	Patiala.		
17		1		1		5	2	5	W	1·7	1·5	0·8	+88	69	·207	1·2	0	0·90	−0·90	0	0·78	−0·78	0	0·78	−0·78	0	Ludhiana .	Punjab (Sub-Montane).	29
23	1	4		1	1			1	N 45° E	0·4		1·1	−64	68	·193	1·1	0	1·10	−1·10	0	0·52	−0·52	0	0·52	−0·52	0	Sialkot.		
27								4	N 45° W	1·4				75	·217	1·1	0	1·20	−1·20	0	0·82	−0·82	0	0·82	−0·82	0	Umballa.		
31									Calm	0·5	0·5	1·1	−55	66	·160	1·4	0	1·60	−1·60	0	0·74	−0·74	0	0·74	−0·74	0	Rawalpindi.	North Punjab.	31
																				0	0·23	−0·23					VII.—N. W. Frontier Province, Indus Valley and North-West Rajputana.		
29					2				S	0·4	0·4	2·4	−83	67	·176	2·5	0	1·10	−1·10	0	0·33	−0·33	0	0·33	−0·33	0	Peshawar .	North Punjab.	31
17	2	5	1		3	3			N 80° E	2·3	2·0			53	·156	1·5	0	0·40	−0·40	0	0·54	−0·54	0	0·54	−0·54	0	Khushab .	West Punjab.	32
13	1	2	5	7	1	1	1		S 68° E	2·9	2·5			55	·179	1·5	0	0·60	−0·60	0	0·42	−0·42	0	0·42	−0·42	0	Montgomery		
31									Calm	0·4	0·4	0·8	−50	71	·196	1·0	0	0·80	−0·80	0	0·21	−0·21	0	0·21	−0·21	0	D. I. Khan.		
27				3	1				S 31° E	1·9	1·2	1·3	−8	64	·211	1·0	0	0·70	−0·70	0	0·19	−0·19	0	0·19	−0·19	0	Mooltan.		
31									Calm	0	0	1·6	−100	74	·255	1·8	0	0·40	−0·40	0·01	0·09	−0·08	0·01	0·09	−0·08	0·01	Jacobabad.	Sind.	41
4	19	1						7	N 9° W	6·3	6·6	6·5	+2	47	·234	0·8	0	0·20	−0·20	0	0·05	−0·05	0	0·05	−0·05	0	Hyderabad.		
3	4	12	10	1	1				N 60° E	4·7	5·9	9·2	−36	56	·321	1·1	0	0·40	−0·40	0·02	0·13	−0·11	0·02	0·13	−0·11	0·02	Kurrachee.		
3	7	7	5	2	1	1	1	4	N 30° E	4·0		2·4	+67	47	·187	1·1	0	0·40	−0·40	0	0·17	−0·17	0	0·17	−0·17	0	Bikaner .	West Rajputana	51
	8	7	9	3	2			2	N 56° E	4·9	4·3	2·1	+105	44	·187	0	0	0·40	−0·40	0	0·12	−0·12	0	0·12	−0·12	0	Pachpadra.		
2	3	24	1			1			N 42° E	4·7	4·2			34	·172	1·7	0	0·50	−0·50	0			0			0	Jodhpur.		
																				0·22	0·19	+0·07					VIII.—East Rajputana, Central India and Gujarat.		
11	3	5	2	1	1		3	5	N 2° W	1·7		3·4	−50	42	·186	1·6	0	0·70	−0·70	0	0·19	−0·19	0	0·19	−0·19	0	Jaipur .	East Rajputana	50
16			1		2	11	1		S 85° W	1·4	1·3			63	·242	1·2	0			0			0			0	Bharatpur.		
21		1	1		3	2	3		N 81° W					61	·283	1·1	1	0·80	+0·20	0·37	0·29	+0·08	0·37	0·29	+ 0·08	0·35	Kotah.		
26	1	2	2						N 55° E	2·2		3·7	−41	50	·181	1·3	0	0·80	−0·80	0	0·35	−0·35	0	0·35	− 0·35	0	Sambhar.		
29	1							1	N 24° W	1·3	1·2	1·4	−14	67	·246	1·7	0	0·60	−0·60	0	0·27	−0·27	0	0·27	− 0·27		Ajmer.		
28	2							1	N 15° W	1·1	1·1			58	·266	2·0	1	0·50	+0·50	0·19			0·19			0·19	Udaipur.		
	3	14	10	4					N 67° E	5·3		8·1	−35	40	·236	1·0	0	0·09	−0·09	0	0·06	−0·06	0	0·06	− 0·06	0	Deesa.		
	1	5	3	6	2	7	2	5	S 6° E	7·2	6·0	5·1	+18	59	·365	0·7	0	0·20	−0·20	0	0·07	−0·07	0	0·07	− ·07	0	Bhuj .	Kathiawar and Cutch.	46
	4	12	10	1		1	1	2	N 52° E	7·8	9·3			51	·306	1·6	0			0			0			0	Jamnagar.		
2	1	2	23	2		1			N 88° E	4·8	4·8	4·8	0	51	·308	0·9	0	0·20	−0·20	0·08	0·04	+0·04	0·08	0·04	+0·04	0·08	Rajkot.		
	3	24	2					2	N 10° E	6·5	6·5	5·0	+30	55	·401	2·8	1	0·40	+0·60	1·09	0·09	+1·00	1·09	0·09	+1·00	1·01	Veraval.		
	7	15	8					1	N 44° E	16·6				61	·454	1·6	0			0			0			0	Dwarka.		
	1	6		2		2	5	15	N 41° W	4·2	3·9			57	·366	2·5	2	0·10	+1·90	0·47	0·07	+0·40	0·47	0·07	+0·40	0·33	Bhavnagar Para.		
8	3	3	6	1	2	2	5	1	N 45° E	1·0	1·0	1·2	−17	73	·285	2·2	0	0·70	−0·70	0	0·55	−0·55	0	0·55	−0·55	0	Newgong .	Central India.	19
9	3	6	8	4	1				N 78° E	2·9	2·3	2·1	+10	73	·381	3·8	3	0·50	+2·50	1·16	0·20	+0·96	1·16	0·20	+0·96	0·63	Indore.		
3	2	22	3	1					N 49° E	5·3	4·8	8·1	−41	64	·288	2·7	0	0·60	−0·60	0·13	0·28	−0·15	0·13	0·28	−0·15	0·05	Neemuch.		
	7	6	16	1	1				N 65° E	5·2	4·9	5·0	−2	66	·460	2·3	2	0·10	+1·90	0·84	0·01	+0·83	0·84	0·01	+0·83	0·57	Surat. .	Gujarat.	45
	5	18	3					10	N 13° E	3·9	6·4			48	·318	1·8	0	0·10	−0·10	0·11	0·07	+0·04	0·11	0·07	+0·04	0·06	Ahmedabad		

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.												
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
32	United Provinces West.	Agra	555	29·526	—·024	30·085	29·626	28th	29·416	5th	·210	54	74·1	−2·0	48·3	−0·5	61·2	−1·3	25·8	84·0	18th	39·9	25th, 26th & 27th.	44·1
31	United Provinces Central.	Jhansi	858	29·229	—·008	30·097	29·324	28th	29·132	5th	·202	57·7	77·3	−1·1	52·7	+0·8	65·0	−0·2	24·6	85·2	17th & 18th.	44·2	26th & 28th.	41·0
	IX.—Deccan				—·022								79·8	−1·9	57·6	+3·4	68·7	+0·8	22·2					44·2
36	Bombay Deccan	Belgaum	2,539	27·450	—·025	29·963	27·538	28th	27·352	6th	·186	66·9	78·7	−2·9	61·6	+3·5	70·2	+0·3	17·1	82·3	5th	49·5	30th	32·8
		Sholapur	1,590	28·418	—·038	29·998	28·535	28th	28·314	6th	·221	·682	82·2	-3·3	62·9	+5·4	72·6	+1·1	19·3	86·7	21st	47·6	29th	39·1
		Poona	1,840	28·166	—·044	30·014	28·275	28th	28·049	6th	·226	63·0	81·8	−2·5	58·5	+4·7	70·2	+1·1	23·3	87·0	21st	45·5	30th	41·5
		Bijapur	1,946	28·064	—·034	29·998	28·163	28th	27·964	6th	·199	67·4	81·6	−2·4	62·6	+6·6	72·1	+2·1	19·0	85·9	6th & 21st.	46·6	30th	39·3
40	Khandesh	Malegaon	1,430	28·593	—·037	30·034	28·707	28th	28·476	6th	·231	62·1	80·5	−3·7	56·5	+5·2	68·5	+0·8	24·0	87·9	19th	43·3	28th	44·6
		Ahmednagar	2,152	27·879	—·027	30·038	27·979	28th	27·770	6th	·209	63·8	79·5	−3·5	55·9	+4·4	67·7	+0·5	23·6	86·3	20th	40·9	30th	45·4
41	Berar	Akola	930	29·120	—·022	30·045	29·243	27th	29·018	6th	·225	62·6	80·9	−2·7	55·9	+4·5	68·4	+0·9	25·0	90·0	17th, 19th	39·9	29th	50·1
		Amraoti	1,215	28·835	—·013	30·049	28·950	28th	28·738	21st	·212	65·1	80·0	−2·7	59·7	+2·9	69·9	+0·1	20·3	89·2	19th, 20th	47·5	25th	41·7
42	Central Provinces, West.	Khandwa	1,044	29·006	—·015	30·060	29·130	27th	28·898	10th	·232	59·5	80·6	−2·4	53·9	+3·7	67·3	+0·7	26·7	91·2	19th	37·2	27th	54·0
		Hoshangabad	1,006	29·076	—·002	30·099	29·204	28th	28·986	6th	·218	58·1	76·9	−2·4	53·1	+1·4	65·0	−0·5	23·8	87·7	18th	39·2	29th	48·5
		Nagpur	1,025	29·028	—·014	30·058	29·144	28th	28·935	21st	·209	61·5	79·0	−2·3	57·0	+2·7	68·0	+0·2	22·0	88·1	19th, 20th	44·1	28th, 29th	44·0
43	Central Provinces, Central.	Chanda	634	29·432	—·010	30·043	29·531	28th	29·323	21st	·208	62·8	82·0	−0·5	55·7	+3·9	68·9	+1·7	26·3	91·7	20th	39·0	29th	52·7
		Seoni	2,033	28·009	—·016	30·076	28·107	28th	27·933	6th	·174	58·3	75·5	−2·2	51·9	+2·1	63·7	−0·1	23·6	85·3	18th, 19th	38·0	28th	47·3
		Jubbulpore	1,327	28·720	—·022	30·084	28·632	28th	28·631	10th	·201	54·2	75·4	−1·5	48·0	+2·0	61·7	+0·3	27·4	85·4	19th	32·9	28th	52·5
		Saugor	1,807	28·252	—·001	30·095	28·355	28th	28·168	5th	·187	58·8	74·5	2·2	52·7	+0·8	63·7	—0·7	21·8	83·4	18th, 19th	43·1	24th	40·3
49	Central India	Sutna	1,040	29·023	—·014	30·092	29·128	28th	28·930	6th	·198	53·5	74·1	−1·0	47·9	+0·8	61·0	−0·1	26·2	81·3	17th, 19th	35·5	28th	45·8
44	Central Provinces, East.	Raipur	970	29·084	—·017	30·051	29·210	28th	28·992	21st	·218	62·7	79·4	+0·2	53·0	−1·1	66·2	−0·5	26·4	89·8	19th	39·3	29th	50·5
		Sambalpur	486	29·598	—·012	30·059	29·716	28th	29·511	10th	·205	62·2	79·6	−0·2	52·5*	−2·3*	67·1*	−1·3*	27·1*	89·6	19th	44·1*	5th	45·5*
39	Hyderabad (North).	Aurangabad	1,905	28·131		30·034	28·264	27th	28·033	6th	·241	64·6	78·1		55·9		67·0		22·2	84·8	20th	41·1	30th	43·7
		Indur		28·770			28·800	31st	28·712	7th	·088	67·6	80·4		57·3		68·9*		23·1	88·8	21st	43·1	29th	45·7
		Bidar	2,165	27·855		30·004	27·947	27th	27·774	6th	·173	67·9	79·0		61·8		70·4		17·2	84·9	21st	53·0	29th	31·9
53	Hyderabad (South).	Gulbarga	1,503	28·518	—·043	30·003	29·643	28th	29·427	6th	·216	70·2	84·1	−0·9	63·0	+5·3	73·6	+2·2	21·1	90·4	21st	46·3	29th	44·1
		Raichur	1,326	28·685	—·026	29·990	28·806	28th	28·602	10th	·204	71·1	84·4	−0·5	66·8	+3·5	75·6	+1·5	17·6	90·1	21st, 22nd	52·2	28th	37·9
		Hyderabad (Deccan).	1,690	28·334	—·033	30·019	28·450	28th	28·252	6th & 10th.	·198	66·5	81·4	−1·0	62·3	+5·0	71·9	+2·0	19·1	87·9	21st	47·3	29th	40·6
		Secunderabad	1,787	28·238	—·025	30·021	28·357	28th	28·154	6th & 10th.	·203	66·3	82·3	−0·1	62·0	+4·7	72·2	+2·3	20·3	90·1	21st	46·7	29th	43·4
		Hanamkonda	871	29·161		30·007	29·282	28th	29·074	10th	·208	68·7	82·9		63·3		75·1		19·6	90·0	21st	47·1	29th	42·9
	X.—West Coast				—·029								85·9	−1·2	73·1	+3·3	79·6	+1·1	12·8					24·4
37	Konkan	Bombay	37	29·970	—·041	29·947	30·082	28th	29·827	6th	·255	73·9	84·1	−0·4	72·2	+2·4	78·2	+1·0	11·9	88·0	1st & 3rd.	67·0	21st & 31st.	21·0
		Ratnagiri	110	29·884	—·022	29·935	29·991	31st	29·765	6th	·229	75·8	86·5	−3·0	70·9	+3·7	78·7	+0·4	15·6	92·4	2nd	60·9	31st	31·5
		Mormugao	60	29·925	—·042	29·921	30·029	29th	29·805	6th	·224	75·4	84·8	−1·5	73·7	+3·4	79·3	+1·0	11·1	89·0	5th	65·3	30th	23·7
		Goa	199									76·3	83·7	−3·7	74·3	+5·0	79·0	+0·7	9·4	87·0	1st, 5th	66·0	30th & 31st.	21·0
		Karwar	44	29·935	—·036	29·911	30·042	31st	29·814	6th	·228	75·1	86·0	−1·7	71·1	+4·9	78·6	+1·6	14·9	89·8	3rd 5th	60·5	30th	29·2
33	Malabar	Cochin	10	29·965	—·009	29·903	30·047	28th & 31st.	29·892	6th	·155	78·2	89·8	+1·3	75·0	+2·1	82·4	+1·7	14·8	92·3	9th	67·8	30th	24·5
		Calicut	27	29·942	—·027	29·898	30·047	31st	29·851	6th	·196	77·3	87·3	−0·3	73·2	+2·7	80·3	+1·2	14·1	89·3	26th	65·0	31st	24·3
		Mangalore	65	29·893	—·048	29·890	30·000	31st	29·783	6th	·217	77·1	87·1	−2·4	73·2	+3·2	80·2	+0·4	13·9	91·7	4th	65·5	30th & 3 cm.	26·2
		Trivandrum	198	29·769	—·006	29·900	29·848	28th, & 31st.	29·667	2nd	·181	76·8	84·2	+1·2	74·4	+2·7	79·3	+2·0	9·8	86·0	5 days	68·0	30	18·0
	XI.—South India				—·020								83·0	−0·5	68·5	+3·1	75·7	+1·3	14·5					29·2
57	Madras (South).	Pamban	37	29·964		29·928	30·066	28th	29·874	5th	·192	78·7	85·6		75·4		79·6		8·2	86·3	4 days	73·2	27th	13·1
		Tinnevelly	168	29·834	—·021	29·934	29·946	28th	29·748	6th	·198	76·5	85·4	−0·8	72·6	+1·2	79·5	+0·2	11·8	89·2	4 days	66·4	30th	22·8
		Madura	447	29·552	—·007	29·942	29·671	28th	29·455	5th	·216	75·9	85·2	−0·8	71·4	+0·9	78·3	+0·1	13·8	88·1	20th, 24th & 27th	63·2	30th	25·2
		Periyakulam	945	29·051			29·165	28th	28·967	5th	·198	73·2	84·2		69·4		75·6		14·8	87·2	19th.	57·2	30th	30·0

* Mean of 18 days.

1—*continued.*

in India, Burma, etc., in December, 1902—continued.

WIND DIRECTION. Number of Winds from										WIND VELOCITY.				HYGROMETRY, A.M.			RAINFALL.												
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Resultant.	Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.	Mean cloud amount.	Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st December 1902.	Normal rainfall for period, 1st to 31st December.	Variation from normal of period, 1st to 31st December 1902.	Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
8					1	17		5	S 59° W	2·4	2·8	2·6	+8	60	·230	0·7	0	0·60	−0·60	0	0·29	− 0·29	0	0·29	− 0·29	0	Agra .	United Provinces West.	22
13		2			1	9	1	5	S 75° W	1·9	2·1	2·3	−9	59	·288	0·6	0	0·80	−0·80	0	0·24	− 0·24	0	0·24	− 0·24	0	Jhansi .	United Provinces Central.	21
																				1·25	0·36	+ 0·94					IX.—Deccan.		
10	1	3	10	6	1				S 83° E	7·0		12·3	−43	83	·556	4·8	5	0·40	+4·60	7·60	0·12	+ 7·48	7·60	0·12	+ 7·48	6·90	Belgaum .	Bombay Deccan	36
		14	7	8	1			1	N 79° E	8·2	9·9	6·8	+46	69	·194	6·0	5	0·50	+4·50	4·14	0·43	+ 3·71	4·14	0·43	+ 3·71	1·73	Sholapur.		
	2	4	12	2		3	2	6	N 55° E	6·4	7·2	5·7	+26	81	·484	4·0	6	0·50	+5·50	2·02	0·19	+ 1·83	2·02	0·19	+ 1·83	0·78	Poona.		
2	3	8	8	4	2			4	N 64° E					80	·541	6·1	5	0·50	+4·50	3·35	0·03	+ 3·32	3·35	0·03	+ 3·32	1·28	Bijapur.		
	5	2	2	5	3	1	6	7	N 49° W	2·8	3·2	3·5	− 9	67	·407	5·9	2	0·50	+1·50	0·94	0·26	+ 0·68	0·94	0·26	+ 0·68	0·45	Malegaon .	Khandesh.	40
13	1	3		6	2		1	5	N 77° E	3·0	3·7			74	·456	5·2	4	0·90	+3·10	1·96	0·50	+ 1·46	1·96	0·50	+ 1·46	0·93	Ahmednagar.		
13	1	4	11	2					N 81° E	2·4	2·4	3·1	− 23	71	·423	4·0	4	0·70	+3·30	1·11	0·75	+ 0·36	1·11	0·75	+ 0·36	0·39	Akola .	Berar.	41
	4	12	11	2	1			1	N 62° E	6·1	5·4	3·1	+74	62	·404	4·1	1	0·60	+0·40	0·58	0·57	+ 0·01	0·58	0·57	+ 0·01	0·33	Amraoti.		
19	1		6	4				1	S 82° E	2·8		2·4	+17	69	·379	4·1	1	0·50	+0·50	0·27	0·43	− 0·16	0·27	0·43	− 0·16	0·13	Khandwa .	Central Provinces, West.	42
		28		3					N 51° E	4·1	4·2	2·4	+75	73	·374	1·9	4	0·60	+3·40	1·59	0·53	+ 1·06	1·59	0·53	+ 1·06	0·65	Hoshangabad.		
1	17	8	2	2				1	N 21° E	3·6		3·5	+ 3	69	·399	3·9	2	0·70	+1·30	1·48	0·48	+ 1·00	1·48	0·48	+ 1·00	0·88	Nagpur.		
22	4	1		1				3	N 7° W	2·4	2·1	1·6	+31	72	·413	3·0	1	0·80	+0·20	0·26	0·34	− 0·08	0·26	0·34	− 0·08	0·14	Chanda .	Central Provinces Central.	43
	8	13	3	2	4		1		N 47° E	2·4		2·5	− 4	65	·352	2·5	3	0·90	+2·10	0·78	0·52	+ 0·26	0·78	0·52	+ 0·26	0·69	Seoni.		
8		4	2	8	7	1			S 46° E	1·5	1·3	1·8	−28	79	·345	2·4	0	0·60	−0·60	0·01	0·33	− 0·32	0·01	0·33	− 0·32	0·01	Jubbulpore.		
	1	4	12	8	5	1			S 69° E	2·7	3·1	2·5	+24	48	·254	2·7	0	0·80	−0·80	0·02	0·70	− 0·68	0·02	0·70	− 0·68	0·02	Saugor.		
16		1	3	1			5	5	N 50° W	1·2	1·3	3·6	−64	64	·274	3·0	0	0·90	−0·90	0·02	0·43	− 0·41	0·02	0·43	− 0·41	0·02	Sutna	Central India	45
7	2	8	5		1	1	1	6	N 25° E	2·6	2·4	2·6	−8	59	·350	2·6	0	0·50	−0·50	0·04	0·25	− 0·21	0·04	0·25	− 0·21	0·04	Raipur .	Central Provinces, East	44
	7	9	9	1	1	1		3	N 45° E	4·7	4·6	1·4	+229	71	·404	3·2	1	0·30	+0·70	0·94	0·24	+ 0·70	0·94	0·24	+ 0·70	0·94	Sambalpur.		
3		1	19	8					S 79° E	6·5	6·4			71	·456	3·2	5	1·10	+3·90	2·87	0·61	+ 2·26	2·87	0·61	+ 2·26	1·35	Aurangabad	Hyderabad (North).	39
29		1		1					E	5·1	4·3			69	·477	3·9	2	0·60	+1·40	0·42	0·33	+ 0·09	0·42	0·33	+ 0·09	0·27	Indur .		
2		7	15	1	1	4	1		N 88° E	8·4	7·0			82	·568	1·7	2	0·70	+1·30	0·55	0·52	+ 0·03	0·55	0·52	+ 0·03	0·40	Bidar.		
2		6	16	7					S 86° E	6·7	6·4			72	·541	4·9	2	0·30	+1·70	0·59	0	+ 0·59	0·59	0	+ 0·59	0·31	Gulbarga .	Hyderabad (South).	53
5		2	10	12	1	1			S 66° E	7·3	6·9			68	·541	2·0	0	0·30	−0·30	0·08	0	+ 0·08	0·08	0	+ 0·08	0·08	Raichur.		
21	1		6	3					S 83° E	3·0	2·9			78	·529	4·6	2			0·41	0·17	+ 0·24	0·41	0·17	+ 0·24	0·29	Hyderabad (Deccan).		
10		4	13	4					E	4·4		3·3	+33	76	·521	4·2	2	0·40	+1·60	0·25	0·17	+ 0·08	0·25	0·17	+ 0·08	0·14	Secunderabad.		
16	6			6	3				S 74° E	§4·7	§4·0			72	·551	5·2	1	0·10	+0·90	0·34			0·34			0·30	Hanumkonda		
																				2·98	0·62	+ 2·36					X.—West Coast.		
	4	9	14	2	2				N 73° E	10·0		10·0	0	74	·635	3·6	3	0·10	+2·90	0·81	0·06	+ 0·75	0·81	0·06	+ 0·75	0·33	Bombay .	Konkan.	37
2	1	3	15	10					S 81° E	9·3	9·2	9·9	−7	69	·625	3·9	6	0·10	+5·90	1·90	0·05	+ 1·85	1·90	0·05	+ 0·85	0·75	Ratnagiri.		
3	1	4	13	5	1			4	N 83° E	7·9				82	·726	3·6	5			3·46	0	+ 3·46	3·46	0	+ 3·46	1·43	Mormugao.		
1		9	19	2					N 80° E					77	·702	4·8	5			2·72	0·06	+ 2·66	2·72	0·06	+ 2·66	0·87	Goa.		
8		6	17						N 79° E	3·0				77	·676	3·2	5	0·10	+4·90	3·21	0·07	+ 3·14	3·21	0·07	+ 3·14	2·47	Karwar.		
1		23	7						N 55° E	4·4				80	·7·7	4·2	4	2·50	+1·50	2·60	1·66	+ 0·94	2·60	1·66	+ 0·94	1·47	Cochin .	Malabar.	38
1		7	18	4	1				N 88° E	6·4	8·1			83	·782	4·7	5	1·60	+2·40	4·68	0·97	+ 3·71	4·68	0·97	+ 3·71	2·43	Calicut.		
11			10	9	1				S 66° E	1·6		3·5	−54	80	·762	4·5	3	0·50	+2·50	2·27	0·45	+ 1·82	2·27	0·45	+ 1·82	1·32	Mangalore.		
19	.	6	4	1	1				N 73° E	6·2				84	·779	6·5	7	2·60	+3·40	5·21	2·24	+ 2·97	5·21	2·24	+ 2·97	1·54	Trivandrum.		
																				5·16	2·55	+ 2·61					XI.—South India.		
	9	13	5	1				3	N 33° E	10·2	10·8			86	·844	4·0	9	9·20	−0·20	5·75	10 31	− 4·56	5·75	10·31	− 4·56	1·39	Pamban .	Madras (South).	57
	12	7	2				2	8	N 2° W	2·6	3·5			88	·811	7·6	10	5·70	+4 30	7·36	3·75	+ 3·61	7·36	3·75	+ 3·61	2·62	Tinnevelly.		
7	11	6	1					6	N 3° E	3·2	3·7	4·9	−24	82	·753	5·0	5	3·80	+1·20	3·78	1·87	+ 1·91	3·78	1·87	+ 1·91	2·03	Madura.		
25			2	3			1		S 56° E	1·4	1·5			85	·698	6·7	6	3·20	+2·80	6·85	1·56	+ 5·29	6·85	1·56	+ 5 29	1·51	Periyakulam.		

§ Mean of 30 days.

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
34	Madras, (South Central).	Salem	940	29·075	−·029	29·972	29·182	28th	28·990	5th and 15th	·192	73·8	85·0	−1·4	66·6	+3·3	76·8	+1·0	16·4	88·7	19th, 20th & 25th.	58·9	29th	29·8
		Coimbatore	1,348	28·652	−·012	29·967	28·760	28th	28·565	5th	·195	72·4	84·4	−0·7	68·9	+2·8	76·7	+1·1	15·5	87·9	20th	58·2	30th	29·7
35	Coorg	Mercara	3,781	26·283	−·003		26·360	19th	26·193	6th	·167	63·7	75·1	−0·1	59·8	+2·0	67·5	+1·0	15·3	78·0	4 days	50·1	30th	27·9
36	Mysore	Chitaldroog	2,405	27·599	−·028	29·958	27·699	28th	27·521	6th	·178	69·8	80·8	−0·5	64·6	+3·8	72·7	+1·7	16·2	85·1	20th	52·5	29th	32·6
		Bangalore	3,021	27·012	?	29·975	27·099	28th	26·946	10th	·153	66·5	78·8	+0·8	62·0	+3·3	70·4	+2·1	16·8	82·3	4 days	50·9	29th	31·4
		Hassan	3,091	26·941	−·022	29·974	27·020	31st	26·858	6th	·162	68·0	77·8	−1·7	61·1	+5·6	69·5	+2·0	16·7	81·2	21st	49·3	30th	31·9
		Mysore	2,518	27·496	−·024	29·964	27·586	28th	27·413	5th	·173	69·7	82·2	+0·6	61·4	+4·6	73·3	+2·6	17·8	86·1	21st & 25th.	52·9	30th	33·2
56	Madras, East Coast, South.	Negapatam	31	29·960	−·017	29·921	30·070	28th	29·863	5th	·207	77·4	82·3	+0·8	74·5	+2·4	78·4	+1·6	7·8	88·7	21st	65·0	29th	23·7
		Cuddalore	12	30·001	−·021	29·942	30·123	29th	29·895	15th	·228	75·4	81·7	−1·5	72·3	+3·2	77·0	+0·9	9·4	84·6	4 days	63·2	29th	21·4
		Trichinopoly	255	29·747	−·019	29·940	29·872	29th	29·649	5th	·223	75·0	83·9	−1·3	70·8	+1·4	77·4	+0·1	13·1	87·5	25th	62·9	29th	24·6
		Madras	22	30·000	−·018	29·953	30·120	28th	29·903	15th	·217	76·2	82·9	−0·4	72·1	+2·4	77·6	+1·0	10·8	86·5	12th	61·0	29th	22·5
		Vellore	707	29·296		29·959	29·423	28th	29·210	15th	·213	72·9	82·7							87·4	19th			
55	Madras, East Coast, Central.	Nellore	71	29·967	−·019	29·973	30·099	28th	29·881	15th	·218	74·4	83·8	−1·0	70·9	+2·7	77·4	+0·9	12·9	88·8	20th & 21st.	61·1	28th	27·7
		Masulipatam	15	30·039	−·011	29·989	30·166	28th	29·955	10th	·211	72·6	82·6	−0·4	68·9	+2·3	75·8	+1·0	13·7	86·0	19th & 21st.	58·2	28th & 29th.	27·8
54	Madras, Central	Cuddapah	433	29·590	−·036	29·969	29·717	28th	29·505	10th	·212	75·0	86·9	+0·1	68·5	+3·1	77·7	+1·6	18·4	92·2	21st	54·3	29th	37·9
		Kurnool	958	29·077	?	30·003	29·201	28th	28·935	10th	·216	71·2	86·7	−0·2	64·0	+5·1	75·4	+2·5	22·7	92·7	21st	44·2	29th	48·5
		Bellary	1,475	28·531	−·029	29·983	28·651	28th	28·445	10th	·206	71·2	86·5	+0·9	65·6	+5·0	76·2	+3·0	20·9	92·0	20th, 21st & 23rd.	53·1	29th	38·9
52	Madras, East Coast, North.	Cocanada	26	30·027	?	29·988	30·155	28th	29·948	10th	·207	73·0	80·8	+0·1	68·5	+2·8	74·7	+1·5	12·3	87·1	21st & 22nd.	57·0	29th	30·1
		Waltair (Vizag.)	226	29·831	−·015	30·003	29·958	28th	29·755	10th	·203	74·0	80·2	−2·1	69·3	+4·6	71·8	+1·3	10·9	85·4	21st	60·0	29th & 31st	25·4
		Gopalpur	21	30·055	−·01	30·016	30·166	28th	29·971	10th	·195	68·0	79·4	−0·9	61·6	+0·8	70·5	−0·1	17·8	83·7	17th, 19th & 21st.	49·6	29th	34·1
8	XII.—Hill Stations.																							
	Baluchistan	Sharigh											57·5		25·4		41·5		32·1	65·3	1st & 3rd.	17·0	22nd & 23rd.	48·3
		Pishin										33·4	56·6	0	30·3	+0·6	43·5	+0·3	26·3	68·2	29th	21·8	22nd	46·4
		Quetta	5,502	24·743	−·003		24·838	31st	24·664	15th	·174	44·8	60·3	+1·3	39·8	+1·4	50·1	+1·4	20·5	68·3	3rd	31·6	31st	36·7
		Chaman	4,311	25·807	−·018		25·914	31st	25·721	14th	·193													
36	Punjab & N.-W. Frontier Province.	Leh	11,503	19·735	−·001		19·957	2nd	19·528	20th	·429	13·7	34·0	−0·7	9·1	−4·1	21·6	−2·4	24·9	41·5	17th	0·5	4 days	41·0
		Srinagar	5,204	25·046	+·002		25·215	2nd	24·915	5th	·300	26·1	51·3	+3·5	23·6	−4·9	37·5	−0·7	27·7	56·0	1st, 2nd & 6th.	11·1	25th	44·9
		Sonemarg		21·892			22·073	2nd	21·754	20th	·319	19·1	36·9		10·1		23·5		26·8	54·7	4th	−9·9	20th	64·6
		Astor (Kashmir)		22·642			22·855	2nd	22·505	31st	·350	21·6			18·7							8·5	22nd & 26th.	
		Minimarg		21·410			21·619	2nd	21·285	20th	·334	16·8	33·2		10·0		21·6		23·2	42·3	15th	−2·9	21st	45·2
		Skardu		23·031			23·260	2nd	22·864	18th	·396	20·7	41·0		18·6		29·8		22·4	48·0	8th	7·1	27th	40·9
		Dras		20·871			21·110	2nd	20·707	20th	·403	−3·4	18·3		−7·3		5·5		25·6	29·3	31st	−20·6	26th	49·9
		Gilgit	4,890	25·351			25·579	27th	25·173	15th	·406	24·5	49·1	0	31·7	−2·8	40·4	−1·4	17·4	58·2	1st	21·9	26th & 27th.	36·3
		Chitral		24·652			24·812	2nd	24·500	6th	·312	36·8	53·5		33·2		43·4		20·3	61·1	4th	27·5	19th	33·6
		Killa Drosh										39·1	53·2		36·6		45·0		16·6	62·8	21st	31·8	18th & 20th	31·0
		Para Chinar	6,000	24·565			24·684	2nd	24·483	9th	·201	40·0	55·6		32·9		44·2		22·7	63·0	3rd	27·4	22nd	35·6
		Cherat		25·799	−·025		25·896	2nd	25·711	10th	·185	47·2	56·3	+0·8	42·8	+0·2	49·6	+0·5	13·5	61·3	5th & 7th.	36·0	23rd, 24th & 25th.	25·3
		Murree	6,323	23·902	−·015		24·017	2nd	23·820	10th	·197	43·4	52·0	−0·8	37·2	−1·8	44·6	−1·3	14·8	60·7	3rd	31·0	20th	29·7
		Poo											49·6		28·3		39·0		21·3	55·5	30th	21·4	26th	34·1
		Simla	7,224	23·154	−·011		23·274	2nd	23·057	21st	·217	42·2	50·9	+1·5	39·5	+0·4	45·2	+1·0	11·4	57·4	3rd	31·2	22nd	26·2
25	United Provinces	Chakrata†	7,022	23·332	−·006		23·423	2nd	23·249	10th	·174	44·0	57·3	+2·3	40·4	+1·0	48·9	+1·7	16·9	65·2	31st	32·4	24th	32·8
		Mussooree	6,705	23·597	−·023		23·709	2nd	23·490	20th	·219	43·4	50·8	−0·6	39·6	−0·6	45·2	−0·6	11·2	58·2	31st	32·0	23rd	26·2
		Ranikhet	6,069	24·159	−·009		24·260	1st	24·053	20th	·207	45·9	57·4	−0·1	42·9	+0·3	50·2	+0·1	14·5	65·1	31st	34·0	21st	31·1
		Muktesar	7,800	22·879			22·991	2nd	22·778	20th	·213	44·4	55·4		38·4		46·9		17·0	62·3	31st	28·1	21st	34·2

† Observation of 22 days.

I—*continued.*

in India, Burma, etc., in December, 1902—continued.

WIND DIRECTION. Number of Winds from									Wind resultant.	Wind Velocity.				Hygrometry, 8 A.M.		Mean cloud amount.	Rainfall.								Heaviest rainfall during month.	Station.	Meteorological Province or District.	Number of District.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	Mean humidity.	Mean vapour tension.		Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st December 1902.	Normal rainfall for period, 1st to 31st December.	Variation from normal of period, 1st to 31st December 1902.				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
12	1	3	13	1		1			N 84° E	3·2	2·9	4·0	−28	84	·718	6·0	6	2·10	+3·90	3·30	1·26	+ 2·04	3·30	1·26	+ 2·04	0·82	Salem	Madras, (South Central).	34
		11	20						N 75° E	2·0	2·7	3·0	−10	88	·714	5·5	7	2·40	+4·60	3·08	1·13	+ 1·95	3·08	1·13	+ 1·95	1·04	Coimbatore.		
20		4	7						N 75° E	5·5	5·1	4·7	+ 9	90	·543	8·1	6	1·00	+5·00	9·16	0·51	+ 8·65	9·16	0·51	+ 8·65	3·38	Mercara	Coorg.	35
5		3	13	8		1	1		S 77° E	5·8	5·0			80	·591	5·4	3	0·70	+2·30	2·83	0·09	+ 2·74	2·83	0·09	+ 2·74	2·29	Chitaldroog.	Mysore.	36
1	1	6	17	6					N 88° E	7·9	6·9	3·9	+77	85	·563	6·5	2	1·00	+1·00	1·00	0·48	+ 0·52	1·00	0·48	+ 0·52	0·75	Bangalore.		
3		7	12	8			1		S 87° E	2·4	2·1			85	·581	7·2	4	1·00	+3·00	5·54	0·18	+ 5·36	5·54	0·18	+ 5·36	1·75	Hassan.		
		11	12	4		2	1	1	N 78° E	6·4	6·9			82	·597	6·7	4	1·00	+3·00	2·08	0·17	+ 1·91	2·08	0·17	+ 1·91	0·72	Mysore.		
6	3	8		2			2	10	N 8° W	6·3	5·5	6·8	−19	86	·816	6·8	16	9·40	+6·60	15·31	12·79	+ 2·52	15·31	12·79	+ 2·52	3·22	Negapatam	Madras, East Coast, South.	56
25	1	1					1	3	N 33° W	1·5	1·9			92	·820	8·2	11	6·80	+4·20	17·06	8·19	+ 8·87	17·06	8·19	+ 8·87	5·18	Cuddalore.		
22		8						1	N 38° E	2·1		5·0	−58	89	·775	5·6	10	4·60	+5·40	6·82	2·76	+ 4·06	6·82	2·76	+ 4·06	1·76	Trichinopoly.		
1	9	7	1	1	1	2		9	N 3° W	6·3		7·6	−17	87	·795	6·1	6	7·20	−1·20	9·18	6·02	+ 3·16	9·18	6·02	+ 3·16	5·25	Madras.		
21		2	2				2	3	N 27° W	1·6	1·6			86	·706	6·0	6	3·60	+2·40	3·63	2·88	+ 0·75	3·63	2·88	+ 0·75	1·68	Vellore.		
12	10							9	N 21° W	2·4				86	·743	6·5	3	3·30	−0·30	12·45	1·64	+10·81	12·45	1·64	+10·81	7·45	Nellore	Madras, East Coast, Central.	55
5	14	7	2	2	1				N 27° E	6·7	6·4	5·7	+12	85	·689	4·6	3	0·60	+2·40	3·61	0·78	+ 2·83	3·61	0·78	+ 2·83	2·15	Masulipatam.		
		1	10	13		5		2	S 55° E					78	·680	4·0	2	1·30	+0·70	1·50	1·14	+ 0·36	1·50	1·14	+ 0·36	1·23	Cuddapah.	Madras, Central	54
13	1	5	5	5	1			1	N 86° E	3·8				77	·605	4·4	0	0·30	−0·30	0·04	0·12	− 0·08	0·04	0·12	− 0·08	0·04	Kurnool.		
11		3	8	5	1	1		2	S 81° E	3·0	3·2	3·1	+ 3	71	·550	5·7	0	0·30	−0·30	0·08	0·11	− 0·03	0·08	0·11	− 0·03	0·03	Bellary.		
6	9	13	1					2	N 24° E	10·2	8·6			76	·624	4·1	2	0·70	+1·30	0·94	0·80	+ 0·14	0·94	0·80	+ 0·14	0·64	Cocanada	Madras, East Coast, North	52
1	1	25		1		3			N 46° E	11·1				62	·532	5·0	2	1·10	+0·90	1·57	1·80	− 0·23	1·57	1·80	− 0·23	1·29	Waltair (Vizag.).		
	17			1				13	N 18° W	10·4	10·2	6·9	+48	76	·524	1·9	3	0·80	+2·20	0·87	0·75	+ 0·12	0·87	0·75	+ 0·12	0·53	Gopalpur.		
																											XII.—Hill Stations.		
																		1·20			0·61			0·61			Sharigh	Baluchistan	48
																	1	2·70	−1·70	0·62	1·20	− 0·58	0·62	1·20	− 0·58	0·45	Pishin.		
29			1	1					S 66° E	1·7	1·9	2·7	−30	83	·161	1·7	2	4·00	−2·00	0·47	0·81	− 0·34	0·47	0·81	− 0·34	0·17	Quetta.		
10		1	5	9	4	2			S 44° E	3·2	3·5			59	·174	2·5	3	3·10	−0·10	0·96	0·92	+ 0·04	0·96	0·92	+ 0·04	0·69	Chaman.		
		13	13	1	2	2			N 77° E	1·9				47	·040	2·5	0	0·60	−0·60	0	0·19	− 0·19	0	0·19	− 0·19	0	Leh	Punjab & N.-W. Frontier Province.	30
19		1		4	5	1		1	S 16° E	1·7	1·8			89	·127	1·9	0	3·50	−3·50	0	0·91	− 0·91	0	0·91	− 0·91	0	Srinagar.		
12	2		5				4	8	N 32° W	4·2	3·8			84	·092	3·1	3			2·88			2·88			1·40	Sonemarg		
4	2	1			4	17	3		S 47° W	4·0				56	·071	3·9	4			1·56			1·56			1·05	Astor (Kashmir).		
14		2	10	4	1				S 82° E	5·7	6·0			52	·054	3·1	3			1·20			1·20			0·49	Minimarg.		
24		1	2		1	2	1		S 11° E	1·4	1·4?			96	·110	3·1	0	1·10	−1·10	0·11	0·71	− 0·60	0·11	0·71	− 0·60	0·05	Skardu.		
30		1							N 45° E	0·3	0·3			94	·039	3·1	1	6·60	−5·60	0·40	2·19	− 1·79	0·40	2·19	− 1·79	0·27	Dras.		
31									Calm	2·2	2·0			65	·133	4·9	1	0·80	+0·20	0·28	0·09	+0·19	0·28	0·09	+ 0·19	0·28	Gilgit.		
22	3	1		2				3	N					83	·184	2·1	4			1·09			1·09			0·46	Chitral.		
19			12						E					58	·136	2·3	4			0·79			0·79			0·25	Killa Drosh.		
21	4	4				1	1		N 9° E	4·5	4·2			53	·129	2·3	0	2·50	−2·50	0·08	0·79	− 0·71	0·08	0·79	− 0·71	0·08	Para Chinar.		
	23	2				1		5	N 6° W	3·7	3·1			32	·107	0·8	0			0	1·00	− 1·00	0	1·00	− 1·00	0	Cherat.		
20	1	1		5	1		1	2	S 56° E	6·1	6·6	6·1	+ 8	35	·097	1·9	0	1·50	−1·50	0·02	1·14	− 1·12	0·02	1·14	− 1·12	0·02	Murree.		
28			1	1			1		S 45° E							2·1	0			0	1·05	− 1·05	0	1·05	− 1·05	0	Poe.		
15	7			2	7				S 45° E					36	·093	2·5	0	1·60	−1·60	0	1·23	− 1·23	0	1·23	− 1·23	0	Simla.		
5	9	2			1			5	N 9° W	6·1		4·2	+45	33	·094	2·3	0	2·40	−2·40	0	1·16	− 1·16	0	1·16	− 1·16	0	Chakrata	United Provinces	35
	3	3	5	3	1	1	7	8	N 30° W					44	·123	1·6	0	1·90	−1·90	0	1·41	− 1·41	0	1·41	− 1·41	0	Mussooree.		
26		1	1			1	2		W	1·3	1·5	1·3	+15	45	·140	1·2	0	1·50	−1·50	0	0·71	− 0·71	0	0·71	− 0·71	0	Ranikhet.		
4	2	2	2	7	1	2	3	8	N 45° W	4·3	4·4			33	·095	1·5	0			0			0			0	Muktesar.		

Table

Abstract of Observations taken at 8 A.M. at 228 Stations

Number of District.	Meteorological Province or District.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure, 8 A.M., in inches.								Temperature of air.											
				Mean actual pressure (reduced to 32°).	Variation from normal.	Mean pressure reduced to sea-level and to constant gravity 45° Lat.	Highest pressure recorded during month.	Date.	Lowest pressure recorded during month.	Date.	Total range of pressure during month.	Mean of 8 A.M.	Mean maximum.	Variation from normal.	Mean minimum.	Variation from normal.	Mean daily temperature.	Variation from normal.	Mean daily range of temperature.	Highest temperature observed during month.	Date.	Lowest temperature observed during month.	Date.	Absolute range during month.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
13	Bengal	Yatung	10,480?										47·7		21·1		34·4		26·6	57·1	5th & 6th,	15·9	22nd & 23rd.	41·2
		Darjeeling	7,376	23·024	−·051		23·132	2nd	22·948	17th	·184	41·5	50·4	+1·7	36·2	−0·4	43·3	+0·7	14·2	59·2	5th	30·4	22nd	28·8
8	Assam Hill Tracts.	Shillong	4,920	25·204			25·286	2nd	25·111	10th	·175	46·7	62·0		40·4		51·2		21·6	70·1	4th	35·0	21st	35·1
		Cherra Poonjee	4,309	25·754			25·835	2nd	25·679	10th	·156	54·5	62·4		47·5		55·0		14·9	70·8	4th	43·0	20th	27·8
	Central India	Mount Abu	3,945	26·141	−·028		26·228	2nd	26·043	10th	·185	58·6	66·8	−1·8	52·6	−0·3	59·8	−1·1	14·2	72·1	31st	45·1	26th & 27th.	27·0
		Pachmarhi	3,528	26·546	−·033		26·640	2nd	26·471	6th	·169	54·3	68·9	−1·4	48·2	+2·5	58·6	+0·6	20·7	77·6	18th	32·3	28th	45·3
	South India	Wellington	6,200	24·288	−·014		24·358	18th	24·225	3rd	·133	57·0	67·9	+1·7	51·3	+3·2	59·6	+2·5	16·6	71·2	14th & 31st,	36·2	29th	35·0
		Kodai Kanal	7,688	22·888			22·926	18th	22·811	15th	·115	54·4	60·7		49·4		54·0		11·3	67·1	31st	42·2	29th	24·9
		Ootacamund	...	23·093			23·163	19th	23·051	5th	·112	55·2	62·9		47·6		55·2		15·3	66·5	2nd, 19th & 31st.	35·1	29th	31·4
		Dodabetta§	...	22·034			22·113	19th	21·958	5th	·155	51·5	55·9		46·3		51·1		9·6	59·8	31st	40·3	22nd	19·5
	XIII.—Extra India.																							
	Ceylon	Trincomalee	12	29·961	−·004	29·899	30·047	28th	29·875	5th	·172	77·7	83·1	+0·6	74·4	−0·1	78·8	+0·3	8·7	85·0	5 days	71·5	15th	13·5
		Colombo	40	29·932	−·001	29·898	30·014	18th	29·861	5th	·153	78·2	86·8	−0·1	73·9	+0·9	80·4	+0·4	12·9	89·5	19th	71·5	30th	18·0
	Persia	Meshed	3,104									35·5			32·0	+1·2						20·0	16th & 18th.	
		Teheran	...	26·030¶			26·440	31st	25·800	14th & 27th	·640	39·3	53·1	+1·8	35·6	+1·7	44·4	+1·8	17·5	60·7	24th	27·0	30th & 31st.	33·7
		Ispahan	...	24·298¶			24·640	31st	24·000	14th	·640	33·2	50·8	−1·5	24·1	−5·2	37·4	−3·4	26·7	62·3	27th	17·1	31st	45·2
		Bushire	14	30·111	−·023	30·084	30·422	31st	29·788	3 th	·634	58·0	68·7	−0·5	55·2	−0·2	62·0	−0·4	13·5	79·6	26th	46·2	31st	33·3
		Bahrein	30	30·068			30·313	31st	29·842	13th	·471	62·7	72·5		51·5		62·2		21·0	79·1	14th & 26th	44·9	12th	34·2
		Jask	...	30·075	−·049		30·348	31st	29·933	14th	·415	68·6	78·6	+0·6	65·1	+1·3	71·9	+1·0	13·5	82·3	7th, 8th & 12th	58·3	31st	24·0
		Muscat	20	30·101	−·017	30·069	30·238	31st	29·957	11th	·381	73·4	76·2	+0·8	71·8	+1·0	74·0	+0·9	4·4	79·2	1st	69·3	31st	9·9
	Arabia	Baghdad	220	29·988*	−·022	30·201*	30·222	29th	29·638	13th	·584	47·0*	62·6*	−1·0	44·3†	+1·2	53·5†	+0·1	18·3	68·2	3rd	35·5	15th	32·7
		Bussrah	...	30·181			30·508	31st	29·828	13th	·680		63·1		50·5		56·8		12·6	70·0	27th	42·0	16th	28·0
		Aden	94	29·988	−·007	30·015	30·103	31st	29·921	12th	·182	75·9	81·5	−0·3	73·1	+0·1	77·3	−0·1	8·4	84·3	8th & 11th	69·9	10th	14·4
		Perim	201	29·844	+·002	29·881	29·953	27th	29·778	10th	·175	78·8	84·8	+0·6	75·2	+0·6	80·1	+0·6	9·6	86·5	8th	73·0	24th & 28th	12·5
	Afghanistan	Kabul	...									30·1	55·6	+0·6	24·7	−3·0	40·1	−1·2	30·9	62·2	6th	15·4	24th	42·8
	Central Asia	Kashgar**	4,255	25·697¶			25·850	5th & 18th.	25·410	9th	·440	21·2	41·1	+4·1	19·0	+2·4	30·0	+3·4	22·1	54·0	11th	13·1	27th	40·9
	Arabian Sea Islands.	Amini Devi	13	29·966	−·030	29·907	30·059	18th	29·859	6th	·200	83·4	86·9	+2·0	76·2	+2·5	81·6	+2·3	10·7	89·6	9th	69·6	31st	20·0
		Minicoy	7	29·957		29·889	30·044	28th	29·872	7th	·172	81·2	86·2	+0·1						88·0	13th			
	Africa	Zanzibar	73	29·913	−·016	29·913	29·979	27th	29·818	10th	·161	80·5	85·4	−0·4	78·6	−0·9	82·0	−0·7	6·8	91·9	2nd	74·7	3rd	17·2
		Do. Dunga	...	29·850			29·922	26th	29·728	10th	·194	79·2	88·1		74·7		81·5		13·4	92·5	13th	71·6	16th	20·9

* Mean of 29 days. † Mean of 27 days. ‡ Mean of 30 days. § 1 P.M. Observations. ‖ Aneroid corrected. ** Observations of 30 days. ¶ Aneroid uncorrected.

Note.—When a query is inserted against any reading or in the returns for any variation station,

I—*concluded.*

in India, Burma, etc., in December, 1902—concluded.

WIND DIRECTION. Number of winds from: Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Wind Resultant.	WIND VELOCITY. Mean velocity in miles per hour, by anemometer (uncorrected).	Mean velocity corrected (where possible).	Normal.	Percentage variation.	HYGROMETRY, 8 A.M. Mean humidity.	Mean vapour tension.	Mean cloud amount.	RAINFALL. Number of rainy days.	Normal number of rainy days.	Variation.	Rainfall of month.	Normal rainfall of month.	Variation from normal.	Total rainfall from 1st to 31st December 1902.	Normal rainfall for period, 1st to 31st December.	Variation from normal of period 1st to 31st December.	Heaviest rainfall during month.	STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.	Number of District.
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
																	0	0·57	— 0·57	0	0·18	— 0·18	0	0·18	— 0·18	0	Yatung .	BENGAL.	13
																	0	0·65	— 0·65	0	0·23	— 0·23	0	0·23	— 0·23	0	Darjeeling.		
13	1	3	6	4		1	2	1	N 88° E	3·0 ††	2·7 ††	1·9	+42	60	·156	1·31	6	0·65	— 0·65	0	0·23	— 0·23	0	0·23	— 0·23	0	Darjeeling.		
21			3	6	1				S 54° E	1·7	1·8			69	·278	2·3	0	0·70	— 0·70	0·09	0·28	— 0·19	0·09	0·28	— 0·19	0·06	Shillong .	ASSAM HILL TRACTS.	8
23		5	2			1			N 59° E	0·5	0·6			56	·231	2·3	0	3·90	— 3·90	0·01	0·21	— 0·20	0·01	0·21	— 0·20	0·01	Cherra Poonjee.		
17	3	7	3	1					N 50° E	4·0	4·0	3·6	+11	42	·212	1·6	0	0·50	— 0·50	0·08	0·21	— 0·13	0·08	0·21	— 0·13	0·08	Mount Abu	CENTRAL INDIA.	
13			2	8	1	6		1	S 15° E	2·4	2·5	2·6	— 4	74	·329	3·3	3	1·00	+ 2·00	2·20	0·47	+ 1·73	2·20	0·47	+ 1·73	1·15	Pachmarhi.		
22	1	4	3	1					N 64° E	2·1		2·5	—16	84	·405	5·3	10	5·60	+ 4·40	15·62	3·91	+11·71	15·62	3·91	+11·71	3·47	Wellington	SOUTH INDIA.	
	5	2	4	8	5		1	6	E	13·4				89	·339	4·8	13	8·10	+ 4·90	9·84	5·57	+ 4·27	9·84	5·57	+ 4·27	3·21	Kodai Kanal		
18	1	4	3	4	1				E	2·5	2·4			77	·542	5·1	10	3·30	+ 6·70	11·88	1·65	+10·23	11·88	1·65	+10·23	4·03	Ootacamund		
														86	·364	7·7	10			20·67			20·67			7·08	Dodabetta		
																											XIII.—Extra India.		
														91	·871	4·0	15			15·12	15·90	—0·78	15·12	15·90	—0·78	3·30	Trincomalee	CEYLON.	
13	1	11				5		1	N 31° E					86	·841	5·1	12			6·62	6·79	—0·17	6·62	6·79	—0·17	1·74	Colombo.		
	13	11	5	1				1	N 31° E	7·9		7·9	0	84	·177	3·1	3			1·26	0·70	+0·56	1·26	0·70	+0·56	0·82	Meshed .	PERSIA.	
														68	·168	4·5	1			0·20	1·37	—1·17	0·20	1·37	—1·17	0·16	Teherantt.		
12	3	8				2			N 30° E	1·8	2·3			82‡	·160‡	3·0	3			1·47	0·54	+0·93	1·47	0·54	+0·93	0·82	Ispahan .		
24			1				5	1	N 79° W	2·1	2·7			79	·389	2·7	3			3·03	3·24	—0·21	3·03	3·24	—0·21	1·76	Bushire.		
	14	7	2	3				4	N 20° E	6·0	7·1	6·6	+ 8	80	·172		0			0			0			0	Bahrein.		
	1		1		7	1	9	10	N 88° W					72	·505	1·5	2			0·67	0·78	—0·11	0·67	0·78	—0·11	0·52	Jask.		
1	13	5	2	1				9	N	11·1	9·2			64	·528	1·0	2			0·52	0·26	+0·26	0·52	0·26	+0·26	0·40	Muscat.		
9				6				16	N 45° W	3·6	3·7			82*	·268*	2·7*	1			0·49	1·64	—1·15	0·49	1·64	—1·15	0·45	Baghdad(a)	ARABIA.	
27					1			1	S 71° W	0·2*	0·3*						3			0·87	3·12	—2·25	0·87	3·12	—2·25	0·44	Bussrah.		
														70	·622	3·4	0			0	0·37	—0·37	0	0·37	—0·37	0	Aden.		
1		16	12	1					N 67° E	12·0	9·7	12·4	—22	69	·680	1·1	0			0	0·08	—0·08	0	0·08	—0·08	0	Perim.		
		1	11	17	2				S 62° E	16·6	15·0			75	·127	2·3	0			0	0·29	—0·29	0	0·29	—0·29	0	Kabul .	AFGHANISTAN.	
		3	2	8	5	12			S 7° E.							0·7	0			0	0·19	—0·19	0	0·19	—0·19	0	Kashgar .	CENTRAL ASIA.	
27	1								N	0·4	0·4																		
2	6	5	3	3	3	1		3	N 81° E					73	·832	6·1	8			6·10	0·32	+5·78	6·10	0·32	+5·78	3·34	Amini Devi.	ARABIAN SEA ISLANDS.	
	4	8	3	9	5	1		1	S 82° E	7·1	7·6			82	·871	6·2	8			1·93	4·66	—2·73	1·93	4·66	—2·73	0·35	Minicoy.		
	12	14	2	1	1	1			N 31° E	7·0	6·6			86	·893	8·1	13			10·42	2·77	+7·65	10·42	2·77	+7·65	2·53	Zanzibar .	AFRICA.	
13	6	8	1					3	N 20° E	5·0	4·8			90	·905	6·0	10			9·51	9·38	+0·13	9·51	9·38	+0·13	1·63	Do. Dunga		
																											Penang .	STRAITS SETTLEMENTS.	
																											Singapur .		

ata for that station are not utilised in calculating the provincial variations.

†† Wind variable 5.

‡‡ Mean of 28 days.

(a) Wind observation of 29 days.

TABLE II.—Abstract of Observations recorded at 10 A.M. and 4 P.M. at 62 Stations in India, Burma, etc., in December, 1902.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M.

Meteorological Province	Station	Elevation of bar-cistern above sea-level in feet	Pressure. Mean of 10 hours.	Mean of 16 hours.	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burma Coast and Bay Islands	Port Blair	61	29·916	29·822	·094	29·865	−·009	29·857	86·4	77·1†	9·3	90·5	72·4	18·1	83·7	83·8	80·7†	+0·9	74·1	78·6	77·8	76·8
	Rangoon	57	·945	·830	·115	·886	−·041	·881	87·6	67·5	20·1	92·1	61·8	30·3	79·9	85·0	75·9	+0·5	65·4	70·6	71·7	69·2
	Diamond Island	41	·967	·838	·109	·908	−·037	·884	82·8	74·8	8·0	86·3	70·2	16·1	78·8	81·3	78·1	+1·3	68·0	71·4	72·8	70·7
	Cocos Island	119										Not	received.									
	Akyab	20	30·015	·901	·111	·958	−·035	·920	81·6	60·4	21·2	85·2	50·5	34·7	73·5	77·9	70·5	−1·7		66·9	68·5	
Bengal and Orissa	Chittagong	87	29·978	·859	·119	·915	−·024	·952	78·5	55·3	23·2	81·2	49·5	31·7	69·7	75·1	66·5	−0·9	54·8	63·9	64·7	61·1
	Calcutta (Alipore)	21	30·078	·949	·129	30·001	−·020	·971	77·2	56·1	21·1	84·0	48·4	35·6	69·9	75·8	65·9	+0·6	53·9	60·5	61·7	58·7
	Sangor Island	25	·061	·945	·116	29·997	−·022	·967	76·8	58·9	17·9	82·1	53·2	28·9	71·0	74·1	66·8	+0·3	56·7	63·2	63·9	61·3
	False Point	21	·067	·954	·113	30·009	−·029	·972	77·6	57·2	20·4	83·9	47·3	36·6	72·5	74·9	66·3	−0·3	56·5	64·6	65·0	62·0
Ganges Plain and Chota Nagpur	Hazaribagh	2,007	28·030	27·932	·098	27·970	−·029	·979	72·1	50·6	21·5	79·1	44·0	35·1	65·2	68·9	60·3	−0·2	45·5	51·8	53·5	50·3
	Darbhanga	166	29·932	29·805	·127	29·863	−·029	·930	73·1	51·5	21·6	78·7	45·3	33·4	65·4	71·3	61·8	−1·8	50·1	59·0	60·1‡	56·4
	Allahabad	309	·822	·700	·122	·749	−·004	30·024	75·6	45·3	30·3	83·4	36·4	47·0	65·5	72·3	58·8	−1·9	44·4	55·9	59·5	53·3
Upper Sub-Himalayas	Dehra Dun	2,233	27·804	27·713	·091	27·748	−·028	·014	69·3	42·9	26·4	74·5	37·4	37·1	58·8	65·5	54·3	−1·8	39·6	49·6	52·7	47·3
	Roorkee	899	29·173	29·067	·106	29·107	−·032	·014	72·3	38·4	33·9	78·2	30·9	47·3	59·6	68·7	53·6	−2·9	37·5	51·3	55·1	48·0
	Meerut	738	·334	·232	·102	·274	−·031	·012	73·6	42·5	31·1	79·0	34·1	44·9	59·0	69·7	56·5	−0·7	39·7	48·9	54·1	47·6
	Lahore	702	·392	·269	·093	·333	−·022	·040	72·3	39·3	33·0	80·3	32·4	47·9	58·0	70·1	54·0	+0·8	36·9	50·0	56·4	47·8
	Ludhiana	812	·267	·171	·096	·207	−·020	·030	69·0	41·7	27·3	74·3	34·0	40·3	57·1	67·0	53·7	−0·9	39·4	48·1	52·4	46·6
N.W. Frontier Province, Indus Valley and N. Rajputana	Peshawar	1,110	·000	28·893	·102	28·937	−·031	·088	68·1	36·6	31·5	77·1	28·4	48·7	55·2	64·2	50·1	−0·8	33·6	47·4	51·5	44·2
	Jacobabad	186	·935	29·819	·116	29·865	−·030	·017	77·8	43·6	34·2	85·0	35·5	49·5	64·7	74·5	58·6	+0·7	41·1	P	P	P
	Kurrachee	30	30·086	·976	·110	30·026	−·026	·007	82·3	57·8	24·5	86·4	49·9	36·5	75·0	78·4	68·7	+1·7	50·7	61·5	64·9	59·0
E. Rajputana, C. India and Gujarat	Jaipur	1,431	28·660	28·557	·103	28·597	−·014	·026	76·9	48·4	28·5	81·6	37·3	44·3	68·6	74·1	60·6	+0·6	41·5	52·4	55·5	49·8
	Udaipur	1,925	·111	·029	·115	·087		·011	75·8	47·9	27·9	83·5	35·3	48·2	67·5	74·2	61·5		45·3	54·5	57·6	52·5
	Deesa	466	29·630	29·483	·117	29·533	−·023	29·961	85·0	51·3	30·7	90·1	43·5	46·6	76·3	82·7	68·9	+0·7	46·5	58·5	60·5	55·2
	Jamnagar	61	30·022	·903	·119	·962		·969	81·9	55·8	26·1	87·8	45·9	41·9	74·7	79·5	68·3		48·6	59·7	62·4	56·9
Deccan	Belgaum	2,539	27·463	27·358	·105	27·407	−·015	·878	78·6	61·6	17·0	82·6	49·4	33·2	72·1	76·0	69·6	+0·2	60·5	65·6	66·0	64·0
	Sholapur	1,590	28·430	28·306	·124	28·367	−·028	·915	82·0	62·9	19·1	86·8	47·4	39·4	74·5	80·5	71·7	+1·0	59·3	65·1	66·6	63·6
	Akola	930	29·135	29·006	·129	29·063	−·015	·964	81·0	55·9	25·1	89·8	39·9	49·9	72·4	79·7	67·5	+1·2	53·4	62·1	64·7	60·0
	Buldana	2,132	27·902	27·796	·106	27·842	−·022	·946	75·5	58·3	17·2	83·3	49·6	33·7	70·4	73·7	65·8	−1·6	53·5	59·8	61·6	58·3
	Khandwa	1,041	29·025‖	28·903‖	·122	28·957	−·003	·980‖	80·9	53·9	27·0	91·2	37·4	53·8	68·9‖	78·7‖	65·4‖	0	51·1	59·1‖	62·5‖	57·6
	Nagpur	1,025	·042	·926	·116	·977	−·007	·980	78·9	57·0	21·9	88·3	44·0	44·3	70·3	77·2	66·9	+0·1	53·2	60·7	63·2	59·0
	Do. (Sanitary Commr.'s Office)	1,013	·060	·939	·121	·993		·986	79·8	57·0	22·8	88·9	44·9	44·0	71·2	78·1	68·0		54·1	62·6	66·1	60·9
	Hyderabad (Deccan)	1,690	28·343	·224	·119	·280	−·042	·930	81·3	62·4	18·9	88·1	47·2	40·9	74·5	78·5	71·1	+2·2	60·4	65·7	67·3	64·5
West Coast	Bombay	37	29·979	29·872	·107	29·919	−·031	·896	83·9	72·0	11·9	88·2	67·1	21·1	77·0	81·0	76·6	+0·6	66·7	70·0	72·5	69·7
	Karwar	44	·933	·839	·094	·879	−·026	·856	86·0	71·1	14·9	89·7	60·4	29·3	82·0	84·1	77·4	+1·6	68·8	72·9	74·8	72·5

† Mean of 30 days. ‡ Mean of 29 days. § Mean of 23 days. ‖ Mean of 27 days.

II.

at 62 Stations in India, Burma, etc., for December, 1902.

Vapour Tension.					Humidity.					Cloud.				Wind direction. Number of winds from										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·806†	·920	·879	·868	+·041	86†	79	76	80	+ 1	4·1	4·9	4·5	−0·2		8	38	2	3	1		3	7	N 32° E	N 58° E	69	66	152*	181	6·31	1·29	Port Blair	Burma Coast and Bay Islands.
·605	·629	·603	·612	−·039	89	62	50	67	− 5	3·6	5·3	4·5	+1·6	3	29	11	4	3			2	10	N 6° E	N 41° E	68	63	20*	117	1·23	0·90	Rangoon	
·591	·677	·688	·652	−·031	68	68	64	67	− 6	3·3	3·6	3·5	+0·1	2	6	27	6	1		1	1	17	N 19° E	N 58° E	61	48	293*	212	1·57	1·50	Diamond Island	
																						Not	received.								Cocos Island	
	·575	·576				69	60			0·5	0·4	0·5	−1·8		1	17	11	2		7	9	15	N 1° W	N 8° W	27	41	60*	57	0	0	Akyab	
·427	·522	·476	·475	−·047	96	71	54	74	− 2	1·9	1·0	1·5	−0·7		6	23	4	1		3	5	20	N 1° W	N 24° W	53	53	69*	66	0·02	0·02	Chittagong	Bengal and Orissa.
·392	·407	·366	·388	−·044	86	55	41	61	− 9	2·0	2·0	2·0	+0·3	1	15	5	3	2		1	4	31	N 26° W	N 23° W	69	62	771	61	0·66	0·58	Calcutta (Alipore)	
·434	·483	·466	·461	−·035	86	63	55	68	− 5	3·1	2·3	2·7	+0·4		30	12	2	1	3	3	3	8	N 1° E	N 3° E	61	59	181	169	1·50	1·25	Saugor Island	
·459	·502	·492	·484	−·012	95	60	57	71	− 3	3·1	3·1	3·1	+0·6	1	16	18	11	2	4	1	2	7	N 32° E	N 32° E	53	58	109*	151	1·81	0·98	False Point	
·247	·225	·224	·232	−·042	66	36	31	44	− 8	3·0	2·5	2·8	+0·7		22	4		1		1	10	24	N 31° W	N 44° W	76	56	138*	119	0	0	Hazaribagh	Gangetic Plain and Chota Nagpur.
·347	·418	·377‡	·381	−·011	90	66	49‡	63	− 5	0·7	0·8	0·8	−0·1	24	1			1	1	6	20	9	N 87° W	S 81° W	48	53	34	49	0	0	Darbhanga	
·287	·324	·331	·314	−·026	92	51	40	61	− 5	1·6	1·8	1·7	+0·2	9	8		1	1		2	18	23	N 57° W	N 47° W	65	25	78*	60	0	0	Allahabad	
·206	·245	·244	·232	−·044	74	49	39	54	− 9	1·7	1·7	1·7	−0·9	25	2				1	15	15	4	S 77° W	S 75° W	47	17	12	31	0	0	Dehra Dun	Upper Sub-Himalayas.
·217	·274	·260	·250	−·039	92	53	37	61	− 3	0·8	0·7	0·8	−1·4	15	2		1	4	1	1	3	35	N 48° W	N 67° W	53	15	43	32	0	0	Roorkee	
·214	·220	·219	·218	−·066	77	43	29	50	−12	0·6	0·8	0·7	−1·1	25						2	26	9	N 82° W	N 61° W	55	44	31*	37	0	0	Meerut	
·191	·258	·277	·242	−·032	78	53	37	56	− 2	1·0	1·6	1·3	−1·1	44	4	1		2		1	8	2	N 63° W	N 35° W	14	20	21	33	0	0	Lahore	
·215	·212	·204	·210	−·067	81	46	30	52	−10	1·3	1·2	1·3	−1·9	13	2	3		4		5	25	10	N 81° W	N 43° W	50	27	34*	27	0	0	Ludhiana	
·160	·235	·230	·208	−·019	73	55	38	55	− 5	1·8	2·3	2·1	−1·4	44	2	6	3	2	2		3		N 62° E	S 4° E	10	8	14*	61	0	0	Peshawar	N.-W. Frontier Province, Indus Valley and N.-W. Rajputana.
·229	?	?	?	?	80	?	?	?	?	1·4	1·0	1·2	−1·0	53	2	1	1	1				4	N 1° W	N 15° W	8	18	2*	39	0·01	0·01	Jacobabad	
·280	·373	·440	·365	−·003	58	43	45	49	− 4	0·6	0·9	0·8	−1·0	1	4	16	14	7	8	8	3	1	S 83° E	N 41° E	34	23	136*	217	0·02	0·02	Kurrachee	
·185	·199	·217	·200	−·071	53	27	25	35	−14	1·5	1·4	1·5	−0·6	9	9	11	8	2	1	1	6	15	N 1° W	N 19° W	39	24	43	71	0	0	Jaipur	E. Rajputana, C. India and Gujarat.
·280	·272	·282	·278		81	40	32	51		1·6	2·3	2·0		45	1	4	7	2		1	1	1	N 75° E		14		†25*		0·19	0·19	Udaipur	
·227	·264	·238	·243	−·011	49	28	21	33	− 3	1·1	1·5	1·3	−0·4		13	19	16	6	3		3	2	N 55° E	N 44° E	58	50		194	0	0	Deesa	
·263	·324	·344	·310		54	36	31	41		1·1	1·6	1·4			23	27	5				5		N 24° E		81				0	0	Jamnagar††	
·523	·557	·522	·534	+·162	93	70	59	74	+24	5·5	5·0	5·3	+2·7	2	1	6	25	17	3	5	3		S 69° E	N 88° E	60	67	171	299	7·60	6·50	Belgaum	Deccan.
·475	·515	·486	·492	+·120	79	59	47	62	+14	5·4	6·1	5·8	+2·9	2	1	25	10	20	2	1		1	N 86° E	S 83° E	65	66	237*	182	4·14	1·73	Sholapur	
·401	·435	·422	·419	+·088	83	53	43	60	+ 9	3·9	3·8	3·9	+2·2	19	1	12	21	5	1	2	1		N 83° E	N 61° E	50	57	57*	80	1·11	0·39	Akola	
·368	·396	·408	·390	+·066	71	53	50	58	+11	3·3	4·0	3·7	+1·3	2	7	12	15	14	7		2	3	N 88° E	N 82° E	47	43	126*	132	3·49	0·87	Buldana	
·365	·391‖	·374‖	·376	+·057	81	55‖	39‖	58	+ 8	4·4‖	4·3‖	4·4	+2·6	11	2	3	18	16	4				S 70° E	N 62° E	53	42	67¶	62	0·27	0·13	Khandwa	
·382	·422	·417	·407	+·058	76	55	45	59	+ 7	3·5	4·0	3·8	+1·5	4	17	23	12	1		1			N 42° E	N 57° E	72	54	84§	83	1·48	0·88	Nagpur	
·401	·474	·503	·459		81	61	52	65		3·6	3·9	3·8		11		40		7		1		3	N 51° E		63		15*		1·58	1·06	Do. (Sanitary Commr.'s Office)	
·518	·535	·540	·531	+·093	89	61	55	68	+ 6	4·2	5·5	4·9	+2·5	28		2	18	14					S 74° E	S 72° E	50	65	69*	81	0·41	0·29	Hyderabad (Deccan)	
·589	·649	·697	·645	+·030	74	69	66	69	0	3·7	3·2	3·5	+1·7		5	12	14	3	5		7	16	N 20° E	N 16° E	31	58	237	236	0·81	0·33	Bombay	West Coast.
·680	·729	·742	·717	+·114	88	67	63	73	+ 6	2·9	3·5	3·2	+1·8	14	3	5	2			3	26	9	N 70° W	N 6° W	50	54	72	66	3·21	2·47	Karwar	

¶ Mean of 26½ days. ** Wind variable 1. †† Wind variable 2. * Corrected.

Table

Abstract of Observations recorded at 10 A.M. and 4 P.M. at 62 Stations

Meteorological Province.	Station.	Elevation of bar-cistern above sea-level in feet.	Pressure. Mean of 10 hours.	Mean of 16 hours	Mean daily range.	Mean daily pressure.	Variation from normal.	Mean reduced to S. L. and for gravity, 45° Lat.	Temperature of Air. Mean maximum.	Mean minimum.	Mean daily range.	Highest maximum.	Lowest minimum.	Absolute range.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Temperature, Wet-bulb. Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
South India.	Periyakulam	945	29·052	28·927	·125	28·994			84·1	69·4	14·7	87·2	57·2	30·0	78·0	81·1	75·6		67·4	72·0	72·9	70·9
	Salem	940	·080	·958	·122	29·018	−·022	29·902	84·8	68·6	16·2	88·5	58·8	29·7	78·6	81·1	75·6	+1·4	67·6	72·6	74·0	71·4
	Chitaldroog	2,405	27·599	27·489	·110	27·543	−·039	·876	86·7	64·6	16·1	85·2	52·6	32·6	74·6	78·4	72·1	+1·8	62·3	66·9	66·5	65·2
	Bangalore	3,021	·019	26·915	·104	26·966	−·016	·893	78·7	62·0	16·7	82·6	50·9	31·7	71·7	75·7	69·6	+2·2	61·0	65·6	66·2	64·3
	Hassan	3,091	26·949	·842	·107	·895	−·024	·887	77·7	61·1	16·6	81·2	49·3	31·9	72·0	75·5	68·9	+1·7	60·0	66·1	65·7	63·9
	Mysore	2,518	27·498	27·382	·116	27·440	−·024	·875	82·4	64·4	18·0	86·0	52·8	33·2	75·1	79·5	72·7	+2·3	63·1	67·4	67·5	66·0
	Madras	22	30·010	29·903	·114	29·955	−·019	·907	82·9	71·7	11·2	86·3	63·9	22·4	79·7	79·5	76·7	+0·7		74·3	73·5	72·9
	Bellary	1,475	28·543	28·410	·133	28·476	−·031	·898	86·4	65·9	20·5	92·0	53·1	38·9	77·5	83·4	75·0	+2·7	62·7	66·8	67·2	65·6
	Waltair	226	29·838	29·727	·111	29·783		·954	80·0	69·3	10·7	85·6	59·9	25·7	77·4	77·3	74·0		62·3	66·8†	67·2‡	65·4
Hill Station, Baluchistan.	Quetta	5,502	24·754	24·677	·077	24·704	−·010		56·0	30·3	25·7	68·4	22·0	46·4	48·3	51·8	42·1	−0·1	28·9	40·4	41·9	37·1
Hill Stations, Northern India.	Leh	11,503	19·761	19·651	·110	19·702	−·003		33·8	?	?	41·3	?	?	22·9	31·2	?	?	6·4	13·4	18·8	12·9
	Srinagar	5,204	25·069	24·960	·109	25·003	−·028		51·0	23·7	27·3	56·3	11·0	45·3	36·5	49·2	36·9	−0·3	22·7	34·5	44·5	33·9
	Kailang	10,087																				
	Simla (Ridge)	7,224	23·182	23·118	·064	23·138	−·016		50·9	39·5	11·4	57·4	31·2	26·2	47·2	47·1	43·9	−1·2	31·5	36·0	36·9	34·8
	Chakrata	7,022	·361§	·301§	·060¶	·318‖	−·017		57·4§	39·9§	17·5	65·2	31·9	33·3	48·8§	49·8§	46·5§	+1·0	32·2¶	38·0§	39·3§	36·5
	Ranikhet	6,069	24·189	24·112	·077	24·136	−·013		57·5	42·8	14·7	65·1	34·0	31·1	51·3	52·7	48·7	−0·6	36·5	41·3	42·1	40·0
	Muktesar	7,600	22·912	22·847	·065	22·880			55·5	38·4	17·1	62·3	28·1	34·2	50·3	49·4	45·4		30·1	38·8	39·6	36·2
	Katmandu	4,388	25·803	25·702	·101	25·751	?		64·0	34·9	29·1	71·1	29·8	41·3	46·4	60·9	48·7	?	33·7	43·2	50·1	42·3
	Darjeeling	7,376	23·031	22·982	·049	23·005	−·037		50·3	36·2	14·1	59·2	30·4	28·8	45·4	47·7	42·6	+0·7	32·0	39·1	41·6	37·6
Hill Stations, Central India.	Mount Abu	3,945	26·162	26·084	·078	26·115	−·035		66·9	52·6	14·3	72·1	45·1	27·0	63·5	64·3	59·1	−0·5	45·2	49·6	49·8	48·2
	Pachmarhi	3,528	·578	·482	·096	·523	−·027		69·0	48·3	20·7	77·7	32·5	45·2	62·5	65·9	58·0	+0·7	45·6	53·2	55·5	51·4
	Chikalda	3,642	·449	·358	·091	·396	−·034		69·5	54·7	14·8	78·8	45·3	33·5	64·4	67·0	61·6	−1·6	50·5	56·3	58·2	55·0
Hill Stations, South India.	Kodaikanal	7,688	22·874	22·796	·078	22·833			60·8	49·4	11·4	67·1	42·2	24·9	58·1	56·8	54·1		46·8	52·9	53·7	50·9
	Ootacamund		23·103	23·030	·073	23·067			63·0	47·6	15·4	68·5	35·0	33·5	59·8	58·8	54·3		46·4	53·3	53·7	51·1
Extra India.	Aden	94	29·996	29·888	·108	29·945	−·006	·972	81·5	73·1	8·4	84·5	69·7	14·8	78·6	80·2	77·2	+0·4	67·7	69·9	69·4	69·0
	Perim	201	·849	·744	·105	·800	+·001	·935	84·8	75·2	9·6	86·5	74·0	12·5	81·8	81·5	79·2	+0·7	69·2	73·0	71·8	71·3
	Minicoy	7	·975	·899	·076	·932		·864	86·1			88·3			83·7	83·3				77·6	77·2	
	Zanzibar	73	·912‡	·796	·116	·854	−·023	·854‡	85·4	78·6	6·8	91·1	74·7	16·4	82·2‡	84·6	81·8	−0·5	75·3	77·9‡	78·6	77·3
	Port Victoria (Seychelles)	15	·949	·858	·091	·904	−·032	·842	83·3	74·5	8·8	85·5	71·4	14·1	81·7	82·4	78·7	−0·3	73·0	76·1	76·1	75·1
	Mauritius (Pamplemouses)	181				·735	−·091	·861				88·5	68·0	20·5			78·1	+0·1				

† Mean of 30 days. ‡ Mean of 29 days. § Mean of 22 days. ‖ Mean of 21 days.

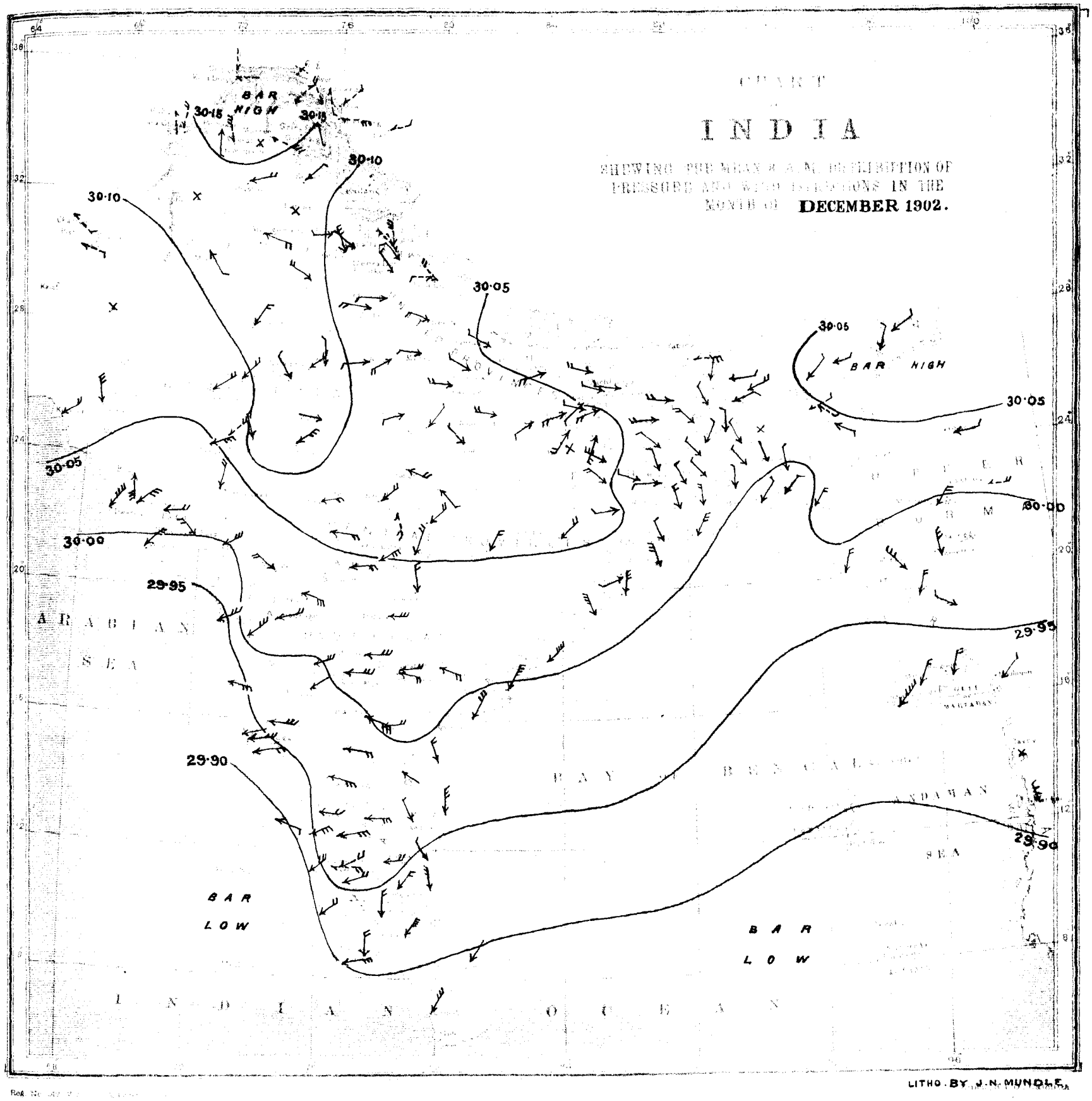
II—*concluded.*

in India, Burma, etc., for December, 1902—concluded.

Vapour Tension.					Humidity.					Cloud.				Wind direction. Number of winds from										Wind Steadiness.		Wind Velocity.		Rainfall.		Station.	Meteorological Province.
From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Mean wind direction.	Normal mean wind direction of month.	Average percentage.	Normal percentage.	Mean velocity in miles per diem.	Normal.	Total rainfall for the month.	Heaviest rainfall during the month.		
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
																									%	%						
·653	·707	·702	·696		90	73	67	78		6·1	7·0	6·6		9	5	3	13	16	5	2	6	3	S 63° E		31		35*		6·85	1·51	Periyakulam	South India.
·667	·725	·754	·715	+·126	95	74	71	80	+ 9	6·6	7·4	7·0	+2·7	9	2	6	37	2	1	1	2	2	N 83° E	N 77° E	63	50	72*	92	3·30	0·82	Salem	
·543	·570	·509	·541	+·122	87	66	52	68	+12	4·9	4·9	4·9	+1·8	5		8	29	13	1	1	2	3	S 85° E	N 83° E	63	82	120*	199	2·83	2·29	Chitaldroog	
·532	·566	·537	·545	+·090	94	72	61	76	+ 8	5·8	5·2	5·5	+1·6		2	10	39	9	1		1		N 88° E	N 70° E	82	84	164*	116	1·00	0·75	Bangalore	
·516	·576	·524	·539	+·087	94	73	59	75	+10	7·1	6·0	6·6	+2·6	3	1	17	24	13	2	2			N 89° E	N 76° E	71	82	50*	95	5·54	1·75	Hassan	
·570	·582	·532	·561	+·107	93	66	53	71	+ 9	6·9	6·3	6·6	+2·8		3	18	26	9	1	2	2	1	N 79° E	N 80° E	68	84	163*	231	2·08	0·72	Mysore	
	·778	·719	·766	+·062		76	74	83	+ 4	6·3	5·7	6·0	+0·6		17	32	10	3					N 43° E	N 25° E	82	79	147	179	9·18	5·25	Madras	
·541	·535	·472	·516	+·049	83	56	41	60	+ 2	5·5	5·5	5·5	+1·8	2		5	23	23	4	2	2	1	S 66° E	S 86° E	68	69	76*	76	0·08	0·03	Bellary	
·477	·525†	·542†	·515		66	55†	57†	59		5·3	4·8	5·1				50	1	4	3	3	1		N 53° E		72		134		1·57	1·29	Waltair	
·148	·174	·166	·163	+·012	87	51	44	61	+ 4	1·3	2·3	1·8	−1·1	12	14	2	3	7	7	3	3	11	N 21° W	N 61° W	16	29	44*	59	0·47	0·17	Quetta	Hill Station, Baluchistan.
?	·020	·029	?	?	?	15	15	?	?	2·3	3·5	2·9	−2·7			9	5	4	25	18	1		S 1° E	S 14° W	55	38	15	23	0	0	Leh	Hill Stations, Northern India.
·114	·180	·246	·180	+·005	88	82	69	80‡	0	2·2	1·8	2·0	−3·3	36	4	4		5	2		2	9	N 16° W	S 84° E	13	6	40*	66	0	0	Srinagar	
																															Kailang	
·101	·101	·118	·107	−·030	42	31	36	37	− 8	2·4	1·6	2·0	−1·9	30	11			1	18	2			S 5° W	S 11° W	14	14		98	0	0	Simla (Ridge)	
·107§	·123§	·135§	·122	−·029	42§	35§	37§	38	−13	2·0§	1·7§	1·9	−1·2	7	6	4	1	13	10	1		2	S 49° E	S 64° W	31	15	145**	106	0	0	Chakrata	
·155	·162	·161	·159	−·042	57	42	40	46	−12	0·8	1·1	1·0	−1·6	29		1	4			11	16	1	S 72° W	S 51° W	31	23	32	37	0	0	Ranikhet	
·089	·122	·146	·119		39	33	41	38		1·5	1·4	1·5		21	1		3	10	4	8	3	12	S 45° W		16		107*		0	0	Muktesar	
·181	·248	·243	·224	−·043	87	77	46	70	− 3	1·0	1·2	1·1	−1·7		2	4	8		1	12	29	6	S 89° W	N 67° W	50	47	13††	22	0	0	Katmandu	
·141	·177	·204	·174	−·027	66	58	62	62	−14	2·6	3·9	3·3	−1·0	2	4	14	11	14	1	2	5	9	N 66° E	N 55° W	32	3	65*	72	0	0	Darjeeling	
·221	·204	·199	·209	−·006	54	34	32	40	− 2	1·7	2·3	2·0	+0·3		14	21	4	8	4	7	2	2	N 45° E	N 13° E	36	13	99*	93	0·02	0·06	Mount Abu	Hill Stations, Central India.
·253	·313	·333	·313	+·038	81	53	51	62	+ 7	3·5	4·6	4·1	+2·0	9	1	11	3	19	1	10		8	S 57° E	N 31° E	23	21	60*	64	2·20	1·15	Pachmarhi	
·330	·371	·396	·366	+·063	71	60	60	65	+14	3·5	4·3	3·9	+1·5	46	1	2		9	1	2		1	S 45° E	S 74° W	13	8	168*	117	1·63	0·43	Chikalda	
·300	·352	·385	·345		84	74	84	82		5·2	6·8	6·0			7	10	7	13	7		2	16	N 47° E		23		317		9·84	3·21	Kodaikanal	Hill Stations, Extra India.
·310	·343	·365	·339		91	67	74	77		5·0	6·1	5·6		28	4	12	8	7			1	2	N 65° E		34		61*		11·88	4·03	Ootacamund	
·609	·618	·575	·601	−·033	75	63	56	65	− 4	3·5	1·2	2·4	−1·0	1		25	26	9			1		N 77° E	S 87° E	81	71	232*	313	0	0	Aden	Extra India.
·636	·698	·648	·661	?	72	64	60	65	?	0·6	0	0·3	−1·3				16	43	1			2	S 56° E	S 60° E	87	83	361*	158	0	0	Perim	
	·865	·850				75	75			6·0	6·1	6·1			5	13	8	18	9	5	2	2	S 67° E		40		184*		1·93	0·35	Minicoy	
·835	·899‡	·902	·879	+·022	85	81‡	76	81	+ 3	7·9‡	6·4	7·2	+3·3	1	18	22	9	3	4		1	2	N 40° E	N 35° E	63	62	163*	152	10·42	2·53	Zanzibar	
·796	·829	·820	·815	+·004	93	76	74	81	0	5·9	6·2	6·1	−0·7		9	2	2				7	42	N 40° W	N 44° W	84	61	196	156	14·43	3·70	Port Victoria (Seychelles.)	
			·761	+·067			79	+ 6																			252	262	9·85	1·68	Mauritius (Pamplemousses).	

¶ Mean of 23 days. ** Mean of 21½ day. †† Mean of 28 days. * Corrected.

G. I. C. P. O.—No. 24 Meteor.—23-4-04.—385.

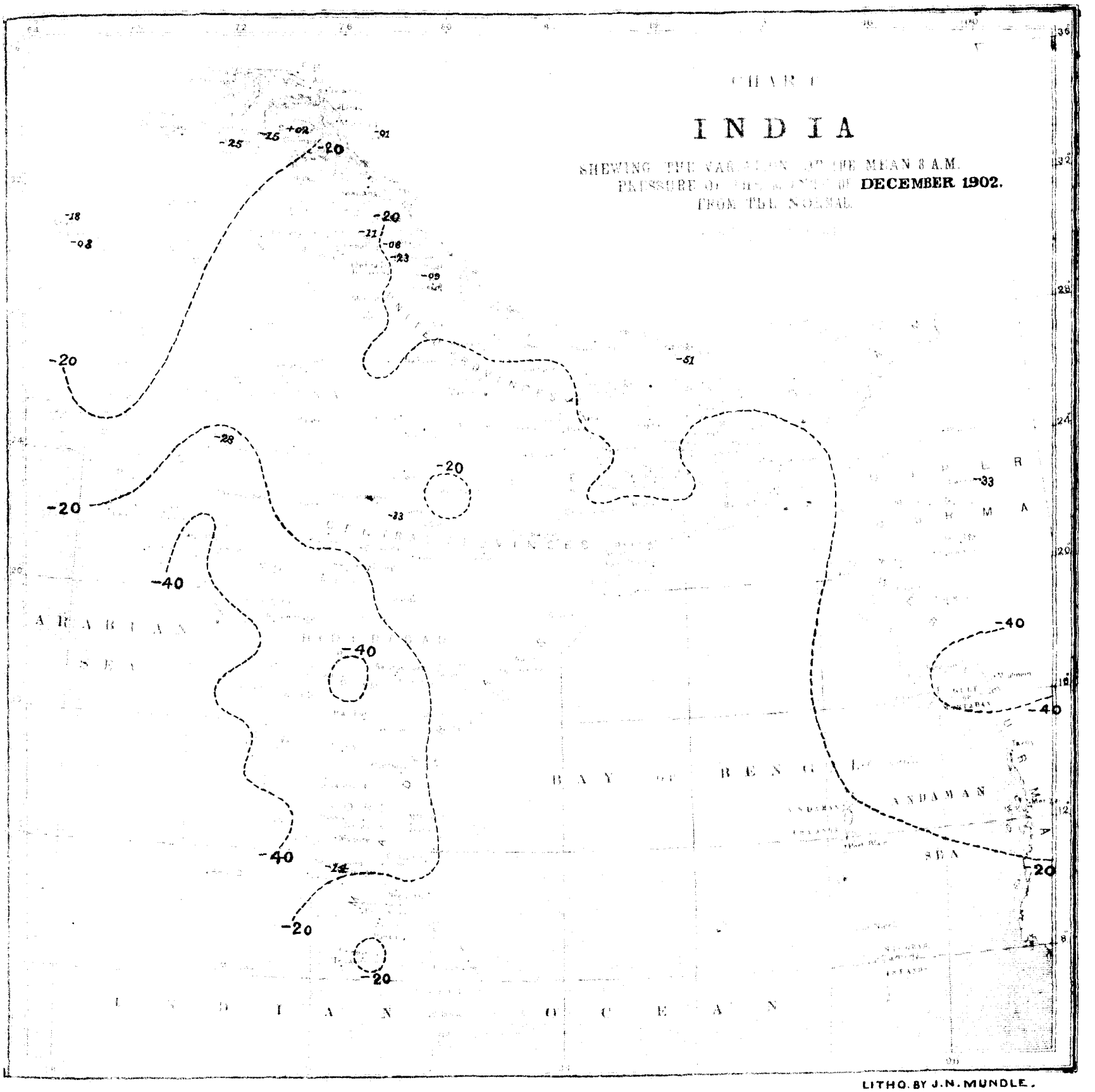


Explanation.

The lines of the above Chart represent isobars or lines of equal barometric pressure and the numbers attached indicate the barometric pressure in inches and are drawn for differences of pressure of ·05 inch. The isobars in the Bay of Bengal are filled in by means of the shore observations, and by comparison with the ordinary or normal distribution of pressure as given in the Charts of the Bay of Bengal prepared by Mr. Dallas, 1st Assistant Meteorological Reporter to the Government of India, and published by the Meteorological Department. Hence they have not the same validity as the isobars in the land area of India itself, but it is to be hoped they deviate very little from the actual.

The mean 8 a.m. wind directions of the month are shown by means of arrows flying with the wind, and are calculated by means of Lambert's formula applied to the winds as given in Table I of the 8 a.m. observations. The mean wind directions for the hill stations are indicated by broken arrows to distinguish them from the wind arrows for the plain stations. The mean velocity of the winds during the month is shewn by the following notation:—

Velocity of	0 to 2 miles per hour	one feather added to the wind arrow	
"	" 2 to 5 " " "	two feathers	" " " "
"	" 5 to 10 " " "	three	" " " "
"	" 10 to 20 " " "	four	" " " "
	over 20 " " "	five	" " " "



LITHO. BY J.N. MUNDLE.

Explanation.

The Chart shows the variation of the mean 8 a.m. pressure of the month from the normal by means of lines drawn for equal amounts of variation of two hundredths of an inch or ·020″. The numbers are given in thousandths of an inch, 20 representing ·020″ or two hundredths of an inch, &c. Continuous lines indicate that the pressure was in excess by amounts indicated by the numbers attached to the lines, and broken or dotted lines that it was in defect by amounts indicated by the numbers attached to the lines. Two parallel lines near to each other one continuous and the other broken or dotted, represent the line of no variation, the dotted line facing the area of deficient pressure or negative variations.

CHART SHEWING THE VARIATION OF THE MEAN MAXIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.

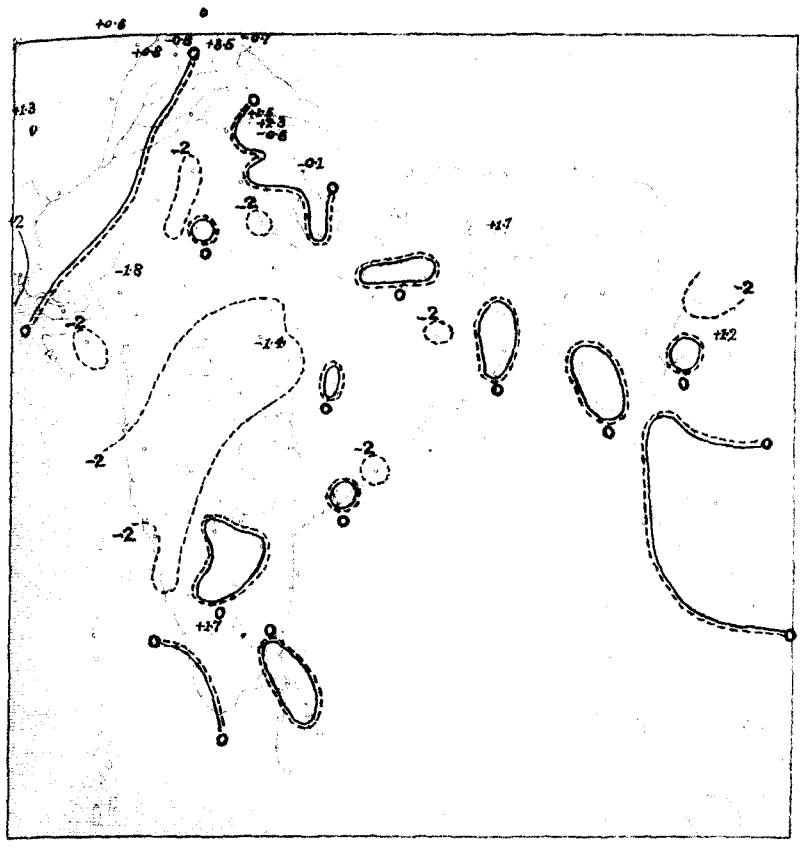
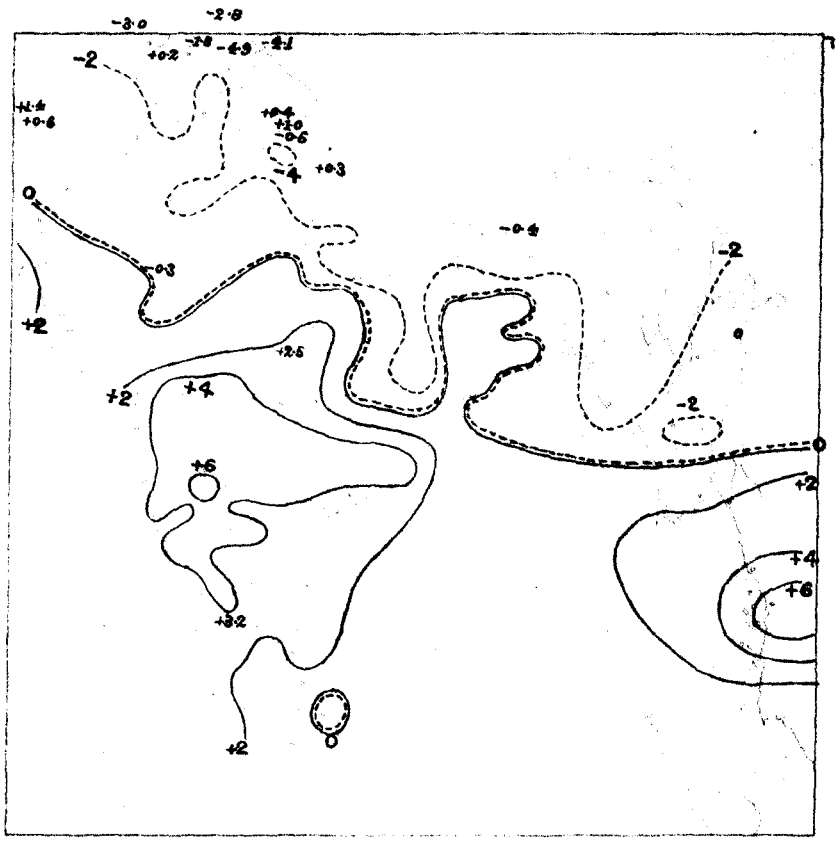


CHART SHEWING THE VARIATION OF THE MEAN MINIMUM TEMPERATURE OF THE MONTH FROM THE NORMAL.



Explanation.

Continuous lines indicate that the mean maximum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

Continuous lines indicate that the mean minimum of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

CHART SHEWING THE VARIATION OF THE MEAN DAILY TEMPERATURE OF THE MONTH FROM THE NORMAL.

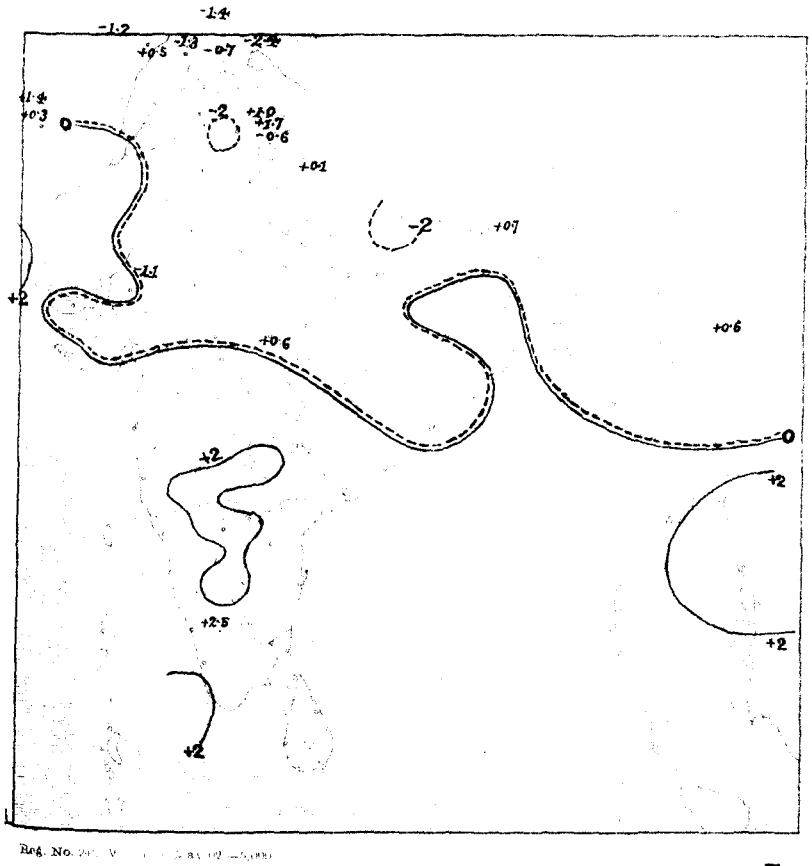
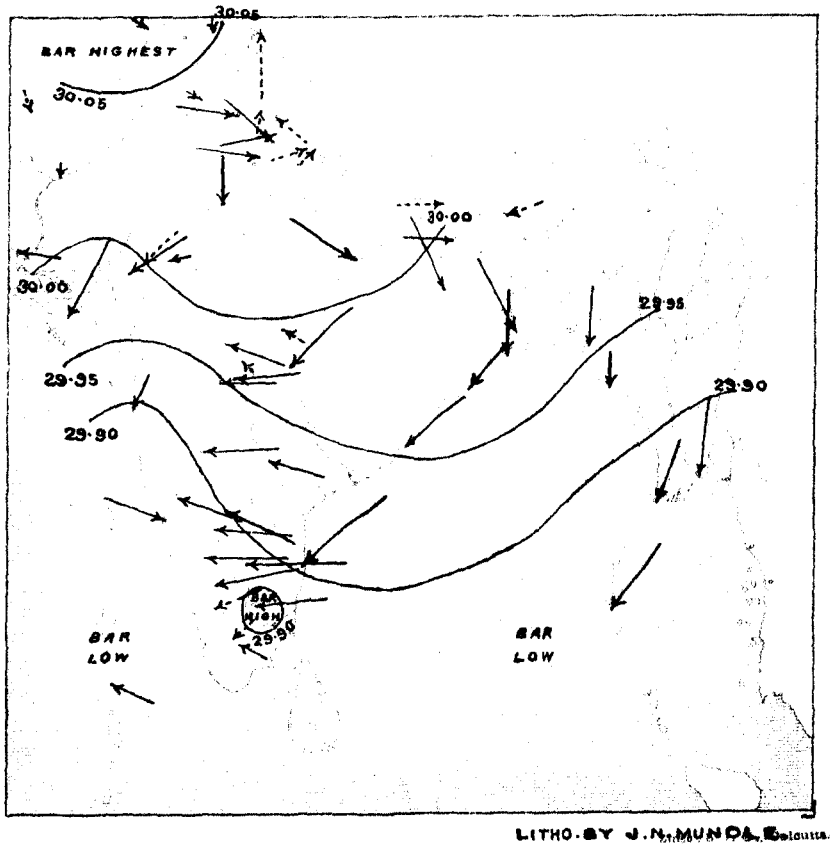


CHART SHEWING THE MEAN DISTRIBUTION OF PRESSURE AND THE RESULTANT WIND DIRECTIONS IN THE MONTH OF **DECEMBER 1902.**



Reg. No. [illegible]

LITHO. BY J. N. MUNDLE, Calcutta.

Explanation.

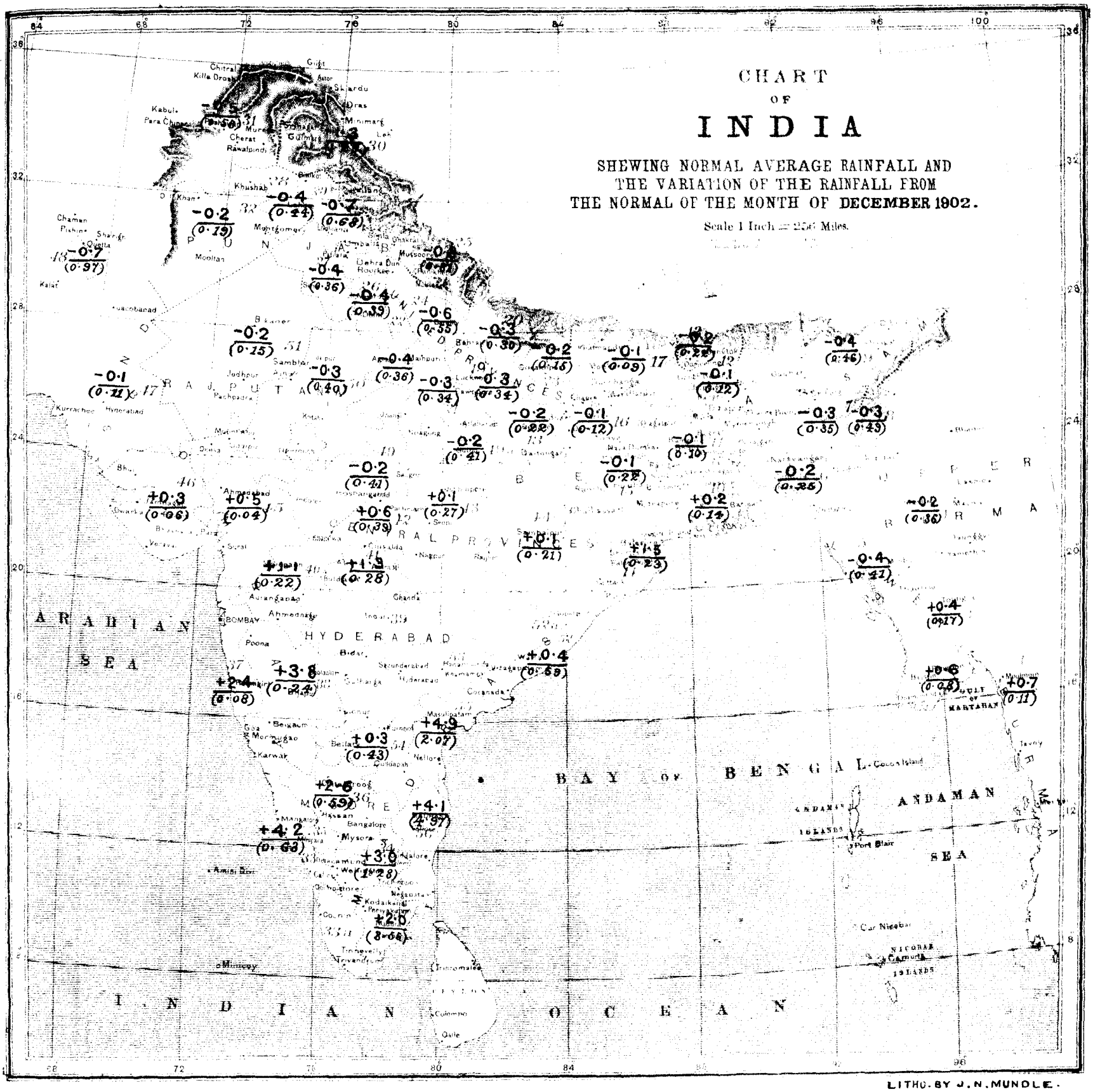
Continuous lines indicate that the mean daily temperature of month was in excess by amounts indicated by the attached numbers. Broken or dotted lines that it was in defect by the amounts indicated by the attached numbers. Double lines are the lines of no variation, the broken line facing the area of deficient temperature.

The Chart is prepared in the same manner as the Monthly Charts which previously to 1890 appeared in the Annual Reports, the only alteration made being that pressures are reduced to constant gravity (45°). The isobars are given for each twentieth of an inch. The arrows show the directions of the resultants of the wind recorded at 10 and 16 hours, and by their lengths the percentage of the observations expressing the numerical value of the resultant: a length of $\frac{1}{20}$th of an inch being equal to 100 per cent.

LITHO. BY J. N. MUNDLE.

Explanation.

The Chart shows the distribution of the rainfall of the month by means of isohyetic lines or lines of equal amounts of rain. The data used in the preparation of this Chart are the rainfall returns of all the observatories in India except those at the Hill Stations over 3,500 feet in elevation (177 in number). The double line or line of no rainfall separates areas in which the rainfall exceeded a tenth of an inch from those where it was actually or practically *nil* (*i.e.* less than a tenth of an inch). The dotted line faces the area of no rainfall.



LITHO. BY J. N. MUNDLE.

Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable normal values. The country is divided into 57 areas, over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both actual and normal) for the months have been calculated, and the numbers given in the centre of each division (usually with a + or − sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess, and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The normal average rainfall is also given below in smaller figures enclosed within brackets so that the percentage variation can be at once calculated. The name of the district can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting red figures.

1. Tenasserim
2. Lower Burma: Deltaic
3. Central do.
4. Upper do.
5. Arakan
6. East Bengal
7. Assam: Surma
8. Do., Hills
9. Do., Brahmaputra
10. Deltaic Bengal
11. Central do.
12. North do.
13. Bengal Hills
14. Orissa
15. Chota Nagpur
16. South Bihar
17. North Bihar
18. United Provinces, East
19. South Oudh
20. North do.
21. United Provinces, Central
22. Do. do., West
23. Do. do., East Submontane
24. Do. do., West do.
25. Do. do., Hills
26. South East Punjab
27. South do.
28. Central do.
29. Punjab, Submontane
30. Do., Hills
31. North Punjab
32. West do.
33. Malabar
33a. Travancore
34. Madras, South Central
35. Coorg
36. Mysore
37. Konkan
38. Bombay Deccan
39. Hyderabad, North
40. Khandesh
41. Berar
42. Central Provinces, West
43. Do., Central
44. Do., East
45. Gujarat
46. Kathiawar
47. Sind
48. Baluchistan Hills
49. Central India, East
49a. Do. do.
50. Rajputana: East, Central India West
51. West Rajputana
52. Madras, East Coast, North
52a. Do. do. do.
53. Hyderabad, South
54. Madras, Central
55. Madras, East Coast, Central
56. Do. East Coast, South
57. Madras, South